MVC-FD83/FD88

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.0 1999. 05

Photo: MVC-FD88

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Hong Kong Model
Chinese Model
Korea Model
MVC-FD83/FD88
Tourist Model
MVC-FD88

Digital
Mavica

This service manual contains information for Japanese model as well.

SPECIFICATIONS

System

Image device	FD83: 1/3-inch CCD FD88: 1/3.6-inch CCD
Lens	FD83: 3× FD88: 8× FD83: f = 5.2 – 15.6 mm (37 – 111 mm, when converted to the equivalent of a 35 mm still camera) FD88: f = 4.75 – 38 mm (34 – 270mm, when converted to the equivalent of a 35 mm still camera) FD83: F2.0 – 2.1 FD88: F2.8 – 3.0
Precision digital zoom	FD83: 6 × FD88: 16 ×
Exposure control	Automatic exposure
White balance	Automatic, Indoor, Outdoor, Hold
Data compression	Movie : MPEG-1 Standard format Still : JPEG Audio with still image : MPEG audio (mono)
Memory	Floppy disk: 3.5 inch 2HD MS-DOS format (1.44 MB)
Flash	Recording distance limitations: 1 5/8 – 8 1/3ft. (0.5 – 2.5 m)

LCD screen

Screen size	2.5 inch
LCD panel	TFT
Total dot number	84260 dots

General

Application	Sony battery pack NP-F330/F550
Power requirements	7.2 V (battery pack)
Power consumption (During shooting)	3.8 W
Operation temperature	32°F to +104°F (0°C to +40°C)
Storage temperature	–4°F to 140°F (–20°C to 60°C)
Dimensions	FD83: Approx. 5 5/8 × 4 1/4 × 2 1/2 in. (142 × 106.5 × 63 mm) (w/h/d) FD88: Approx. 5 5/8 × 4 1/4 × 2 7/8 in. (142 × 106.5 × 72.8 mm) (w/h/d)
Mass	FD83: Approx. 1 lb. 7 oz. (660 g) (including battery pack NP-F330, floppy disk, shoulder strap and lens cap) FD88: Approx. 1 lb.7oz. (670g) (including battery pack NP-F330, floppy disk, shoulder strap and lens cap)
Microphone	Electret condenser microphone
Speaker	Dynamic Speaker

BC-V615/V615A battery charger

Power requirements	100 – 240 V AC, 50/60 Hz
Output voltage	DC OUT: 8.4 V, 0.6 A
Operation temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 56 × 44 × 107 mm (w/h/d) (2 1/4 × 1 3/4 × 4 1/4 in.)
Mass	Approx. 120 g (4.2 oz.)

NP-F330 battery pack

Battery used	Lithium-ion type battery
Output voltage	DC8.4 V (Maximum) DC7.2 V (Nominal)
Capacity	5.0 WAh
Supplied accessories	Power cord (1 set) A/V connecting cable (1) Shoulder strap (1) Battery charger (1) NP-F330 battery pack (1) Lens cap (1) String for lens cap (1)

Design and specifications are subject to change without notice.

DIGITAL STILL CAMERA

MICROFILM

SONY®

• Floppy disk that can be used by the MVC-FD83/FD88

- Size : 3.5-inch
- Type : 2 HD
- Capacity : 1.44 MB
- Format : MS-DOS format
  (512 bytes × 18 sector)
  (FD can be formatted by the MVC-FD83/FD88)

Table for differences of function

Model	MVC-FD83	MVC-FD88	MVC-FD83K	MVC-FD88K
Destination	US, CND, AEP, UK, E, AUS, HK, CH, KR	US, CND, AEP, UK, E, AUS, HK, CH, KR, JE	J	J
Image device	1/3-inch CCD	1/3.6-inch CCD	1/3-inch CCD	1/3.6-inch CCD
Lens	3 ×	8 ×	3 ×	8 ×
Digital zoom	6 ×	16 ×	6 ×	16 ×
CD board	CD-229	CD-228	CD-229	CD-228
FU board	FU-135	FU-137	FU-135	FU-137
PK board	PK-47	PK-48	PK-47	PK-48
RL board	RL-54	RL-56	RL-54	RL-56

Note: MVC-FD83K/FD88K are the same as MVC-FD83/FD88 except accessories and packing materials.

MVC-FD83K : MVC-FD83 + Accessory kit
MVC-FD88K : MVC-FD88 + Accessory kit

- Abbreviation
  AUS : Australian model
  CH : Chinese model
  CND : Canadian model
  J : Japanese model
  HK : Hong Kong model
  KR : Korea model
  JE : Tourist model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270 ˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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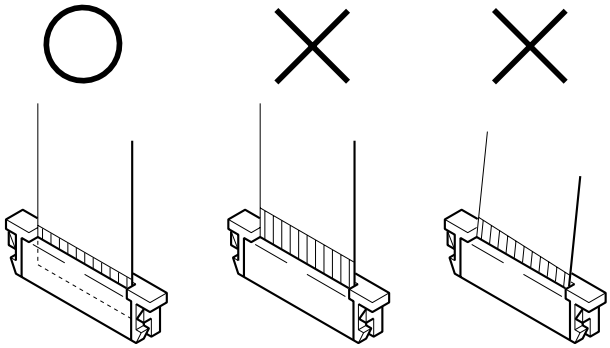
* The color reproduction frame is shown after the page of ELECTRICAL PARTS LIST.

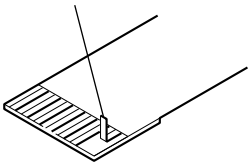
SERVICE NOTE

• NOTE FOR REPAIR

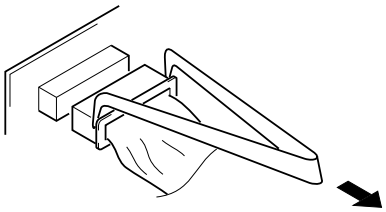
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



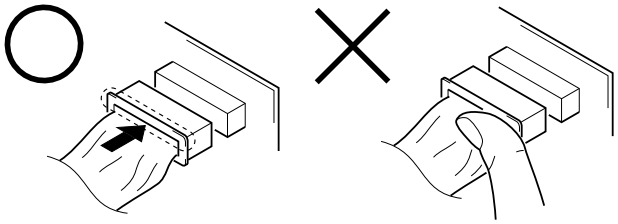
Cut and remove the part of gilt which comes off at the point. (Take care that there are some pieces of gilt left inside)



When remove a connector, don't pull at wire of connector.
Be in danger of the snapping of a wire.



When installing a connector, don't press down at wire of connector.
Be in danger of the snapping of a wire.

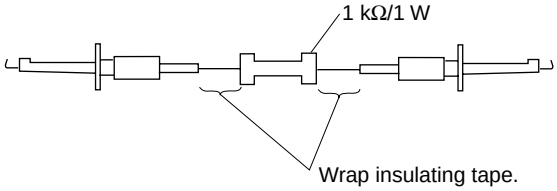


[Discharging of the FLASH unit's charging capacitor]

The charging capacitor of the FLASH unit is charged up to the maximum 300 V potential.
There is a danger of electric shock by this high voltage when the battery is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the MVC-FD71 is simply turned off. Therefore, the remaining voltage must be discharged as described below.

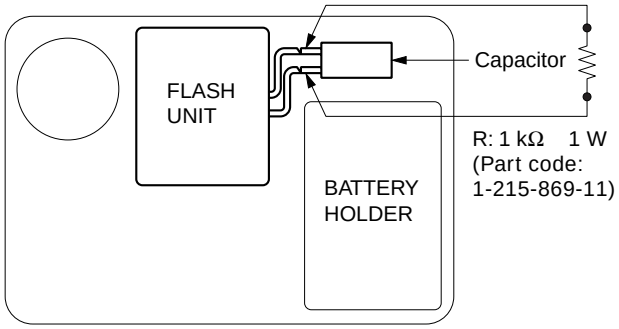
Preparing the Short Jig

To preparing the short jig. a small clip is attached to each end of a resistor of 1 kΩ /1 W (1-215-869-11).
Wrap insulating tape fully around the leads of the resistor to prevent electrical shock.



Discharging the Capacitor

Short-circuit between the positive and the negative terminals of charged capacitor with the short jig about 10 seconds.



[How to connect the extension cable]

1. Connection between the FDD unit and PK-47/48 board.

1) Connection of the extension cable (J-6082-427-A)

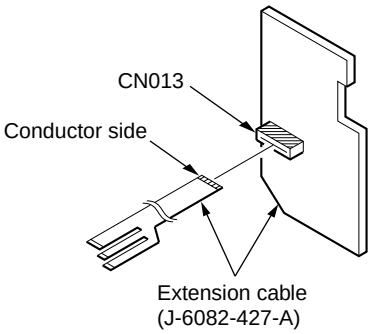


Fig. 1

2) Connection between the PK-47/48 board and extension cable

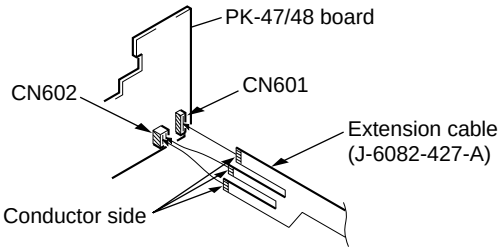


Fig. 2

3) Connection between the FDD unit and extension cable

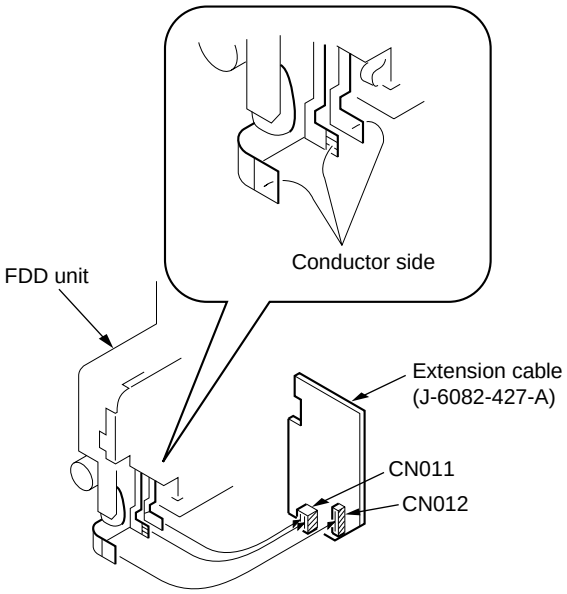
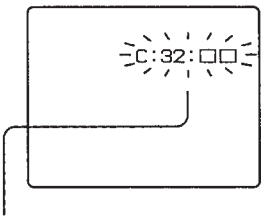


Fig. 3

[Description on Self-diagnosis Display]

Self-diagnosis display

The camera has a self-diagnosis display. This function displays the camera condition with five-digits (a combination of a letter and figures) on the LCD screen. If this occurs check the following code chart. The five-digit display informs you of the camera current condition. The last two digits (indicated by □□) will differ depending on the state of the camera.



Self-diagnosis display

- C: □□: □□
  You can reverse the camera malfunction yourself.
- E: □□: □□
  Contact your Sony dealer or local authorized Sony service facility.

Note : The "Self-diagnosis" data is backed up by the coin lithiumbattery. The data will be lost and initialized when the coin lithium battery is removed.

Display Code	Countermeasure	Cause	Caution Display During Error
C:32:01	Change the disk and turn off the main power then back on.	Defective floppy disk.	DRIVE ERROR
C:13:01	Replace the floppy disk. Format the floppy disk with the MVC-FD83/FD88.	• The type of floppy disk that cannot be used by this machine, is inserted. (Such as 2DD) • Data is damaged. • Unformatted disk is inserted.	DISK ERROR
E:91:01	Repair by service engineers only.	*2 Abnormality when flash is being charged.	Flash LED Flash display Flashing at 3.2 Hz
*1 C:63:00 E:61:00		When failed in the focus initialization.	—
*1 C:63:10 E:61:10		When failed in the zoom initialization.	

Note : The error code is cleared if the battery is removed, except defective flash.
*1 : The error display is given in two ways.
*2 : When the flash charging failed, Page:D, Address:C7, Data:04 are written.
After repair, be sure to write Page:D, Address:C7, Data:00.

[Power supplying Method]

Use the AC power adaptor (BC-V615) when supplying the power to this set.

Before using your camera

This digital still camera uses a floppy disk as a medium for recording images.
Use the following floppy disk type:
• Size: 3.5 inch
• Type: 2HD
• Capacity: 1.44 MB
• Format: MS-DOS format (512 bytes × 18 sectors)
When using 3.5 inch, 2HD floppy disk other than described above, format it using the camera or personal computer.

Do not shake or strike the unit

Malfunctions, inability to record images as well as inability to use floppy disks or image and memory data breakdown, damage or loss may occur.

Do not get the unit wet

When taking pictures outdoors in the rain or under similar conditions, be careful not to get the unit wet.
If moisture condensation occurs, refer to page 61 and follow instructions on how to remove it before using.

Do not insert the floppy disk forcefully

Insert the floppy disk carefully into the digital still camera. You may not be able to remove the floppy disk if you insert it forcefully.

Back up recommendations

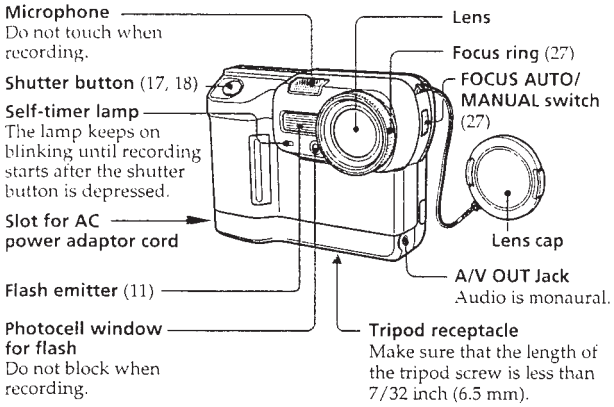
To avoid the potential risk of data loss always copy (back up) data to disk.

Supplied accessories

Power cord (1 set)
A/V connecting cable (1)
Shoulder strap (1)
Battery charger (1)
NP-F330 battery pack (1)
Lens cap (1)
String for lens cap (1)

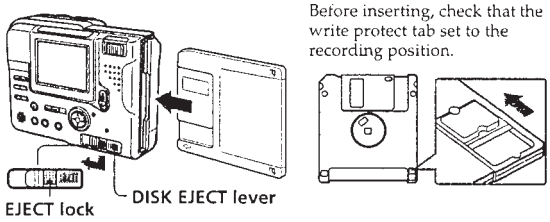
Parts identification

See pages in ( ) for more details.


Microphone
Do not touch when recording.
Shutter button (17, 18)
Self-timer lamp
The lamp keeps on blinking until recording starts after the shutter button is depressed.
Slot for AC power adaptor cord
Flash emitter (11)
Photocell window for flash
Do not block when recording.
Lens
Focus ring (27)
FOCUS AUTO/ MANUAL switch (27)
Lens cap
A/V OUT Jack
Audio is monaural.
Tripod receptacle
Make sure that the length of the tripod screw is less than 7/32 inch (6.5 mm).

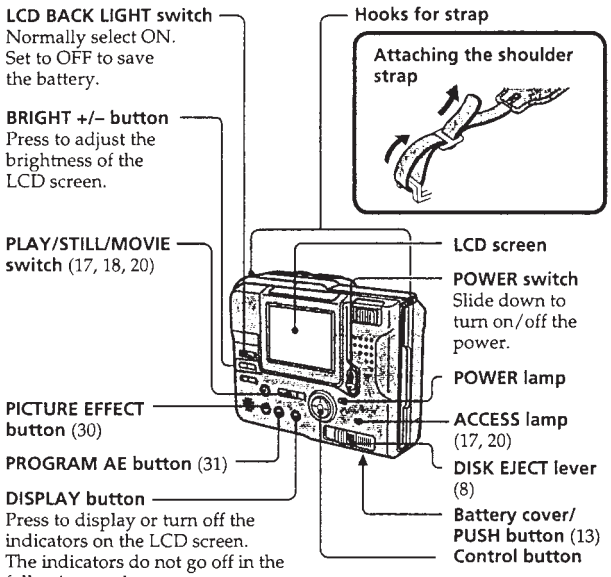
To insert the floppy disk

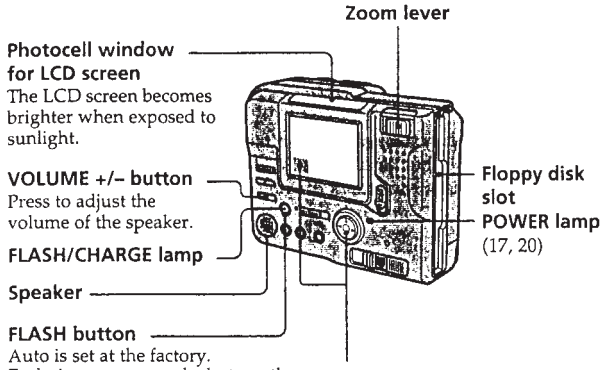
Insert the floppy disk until it clicks.



To remove the floppy disk
While sliding EJECT lock down, slide DISK EJECT in the direction of the arrow.

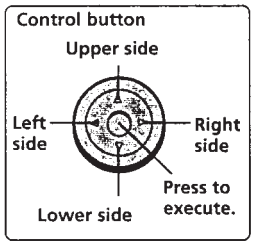
⇨ **Parts identification**


LCD BACK LIGHT switch
Normally select ON.
Set to OFF to save the battery.
BRIGHT +/– button
Press to adjust the brightness of the LCD screen.
PLAY/STILL/MOVIE switch (17, 18, 20)
PICTURE EFFECT button (30)
PROGRAM AE button (31)
DISPLAY button
Press to display or turn off the indicators on the LCD screen.
The indicators do not go off in the following modes:
Program AE, Picture effect, Manual focus, Zoom, AE Lock, Self-timer, Flash, Adjusting the exposure, Flash level, and White balance.
Hooks for strap
Attaching the shoulder strap
LCD screen
POWER switch
Slide down to turn on/off the power.
POWER lamp
ACCESS lamp (17, 20)
DISK EJECT lever (8)
Battery cover/ PUSH button (13)
Control button


Zoom lever
Photocell window for LCD screen
The LCD screen becomes brighter when exposed to sunlight.
VOLUME +/– button
Press to adjust the volume of the speaker.
FLASH/CHARGE lamp
Speaker
Floppy disk slot
POWER lamp (17, 20)

FLASH button
Auto is set at the factory.
Each time you press the button, the flash mode changes as follows:
Auto (no indication) → forced-flash ⚡ →
no flash ⊘ → Auto
In auto mode, the flash goes off automatically according to the brightness of the surroundings.
The subject must be 1 5/8 feet to 8 1/3 feet (0.5 m to 2.5 m) away.
When you record using the flash and conversion lens (not supplied), an eclipse may occur.

Self-timer
Select SELFTIMER from the menu bar with the control button, then press ●.
About 10 seconds after you press the shutter button, the subject is recorded.

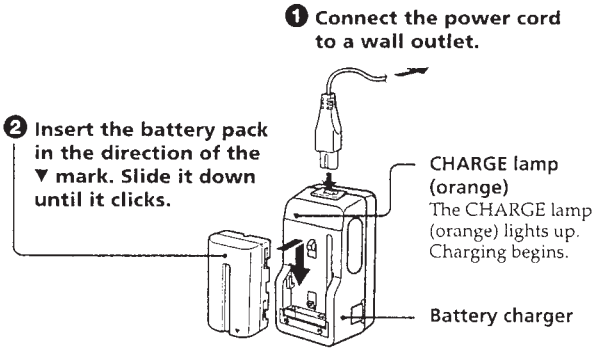


Function of the control button
You can execute the functions by pressing the upper, lower, left or right (▲/▼/◄/►) side of the control button. When an item is selected in the menu, the color of the item changes from blue to yellow. To enter your selection, press the center of the control button (●).

Preparation

1 Charging the battery pack

To charge the battery pack, use the battery charger. Your camera operates only with the "InfoLITHIUM" battery pack (L series)
"InfoLITHIUM" is a trade mark of Sony Corporation.


❶ Connect the power cord to a wall outlet.
❷ Insert the battery pack in the direction of the ▼ mark. Slide it down until it clicks.
CHARGE lamp (orange)
The CHARGE lamp (orange) lights up. Charging begins.
Battery charger

To remove the battery pack

Slide up the battery pack.

Charging time

Battery	Full charge*	Normal charge**
NP-F330 (Supplied)	210 min.	150 min.
NP-F550	240 min.	180 min.

Approximate minutes to charge a discharged battery pack using the battery charger BC-V615/BC-V615A. (Lower temperatures require a longer charging time.)
* Charging for about one hour after the CHARGE lamp goes out.
** Charging just until the CHARGE lamp goes out.

⇨ Preparation

Remaining battery time indication

This camera shows on the LCD panel how many minutes you can still keep on recording or playing back images*. Note, however, that the time might not be displayed correctly under some use conditions or in some environments.
* The time displayed during recording or during playback refers to the time for which the battery lasts if you simply keep the camera on or if you simply keep it displaying images without performing any operation.

Auto power-off function

During recording if you leave the camera inactive for about 3 minutes while the power is on, the camera turns off automatically to prevent wearing down the battery.

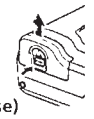
About the power source

This camera can be powered from the following three power sources:
• InfoLITHIUM battery* NP-F330 (supplied)/F550 (not supplied)
• AC power adaptor AC-VQ800 (not supplied)
• DC power adaptor DC-VQ800 (not supplied)
When you use the camera for a long time, we recommend you to power the camera from a wall outlet with the AC power adaptor.

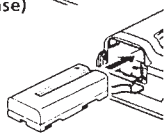
*What is "InfoLITHIUM" ?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camera operates only with the "InfoLITHIUM" battery. "InfoLITHIUM"battery packs have the InfoLITHIUM L mark.
"InfoLITHIUM" is a trademark of Sony Corporation.

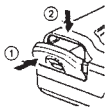
2 Installing the battery pack

❶ 

Open the battery cover.
Slide the battery cover in the direction of the arrow pressing PUSH button.

❷ 

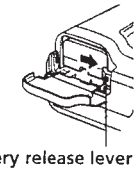
Install the battery pack.
Insert the battery pack with the ▼ mark facing toward the battery compartment.

❸ 

Close the cover.
Press the cover until it clicks.

To remove the battery pack

Open the battery cover. While sliding the battery release lever rightward, remove the battery pack.
Be careful not to drop the battery pack when removing.

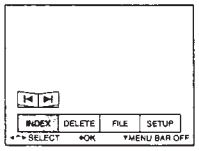


3 Setting the date and time

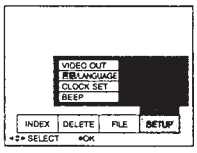
When you use the camera first, set the date and time.
The date and time are necessary for MS-DOS format recording. If they are not set, incorrect date and time are recorded, and CLOCK SET screen in step ❺ appears whenever you turn on the camera in STILL/MOVIE mode.

❶ Slide the POWER switch down to turn on the power.
The POWER lamp lights up.

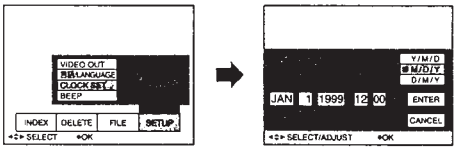
❷ Press ▲ of the control button.
The menu bar appears on the LCD screen.



❸ Select "SETUP" with the control button, then press ●.



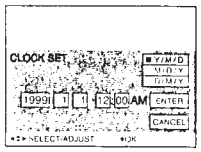
❹ Select "CLOCK SET" from the menu bar with the control button, then press ●.



⇨ Preparation

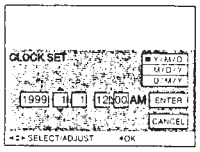
❺ Select the desired display of the date with the control button, then press ●.

Y/M/D (year/month/day)
M/D/Y (month/day/year)
D/M/Y (day/month/year)

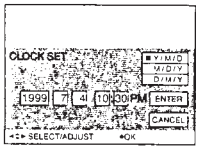


❻ Select the date and time with the control button, then press ●.

The item to be changed is indicated with ▲/▼. Select number by pressing the upper side or lower side of the control button, then press it to enter the number.
After entering the number, ▲/▼ moves to the next item.
When "D/M/Y" is selected, set the time on a 24-hour cycle.



❼ Select "ENTER" with the control button, then press ● at the desired moment to begin clock movement.



To cancel setting the date and time

Select "CANCEL" with the control button, then press ●.

⇨ Recording and playing back images

2 Recording moving images

❶ Set PLAY/STILL/MOVIE to MOVIE.

❷ Press the shutter button fully down momentarily.

The image and sound are recorded for the length which you select in the file menu: 5 seconds, 10 seconds, 15 seconds.

Hold the shutter button fully down.

The image and sound are recorded until you release it.
Maximum 60 seconds when recording 160 × 112 size 🎞60
15 seconds when recording 320 × 240 size 🎞320

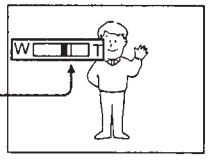
Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom.

Using the zoom function sparingly results in better-looking recordings.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 25 cm (FD83)/90 cm (FD88) away from the lens surface in the telephoto position, or about 25 cm away in the wide-angle position. When the subject is too close to focus on, refer to p. 28.

Digital zoom starts to function when zoom exceeds 3× (FD83)/8× (FD88). The picture quality deteriorates as you go toward the "T" side. Set DIGITAL ZOOM to OFF in the MENU settings. Otherwise the digital zoom activates without notice (p. 55).
Digital zoom does not work for moving images.

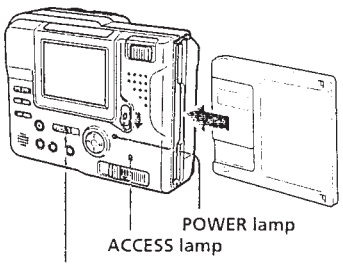


The right side of the bar shows the digital zooming zone.

Recording and playing back images

1 Recording still images

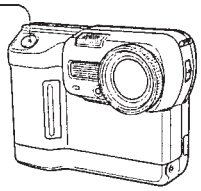
To record the images, slide the POWER switch down to turn on the power (The POWER lamp lights up) and insert the floppy disk until it clicks.



❶ Set PLAY/STILL/MOVIE to STILL.

❷ Press the shutter button halfway down.

The AE lock indicator ◑ (green) flashes. When AE (auto exposure), AWB (auto white balance) and AF (auto focus) are frozen, the AE lock indicator stops flashing.



❸ Press the shutter button fully down.

The image is recorded on the disk.

The number of images you can record on a floppy disk

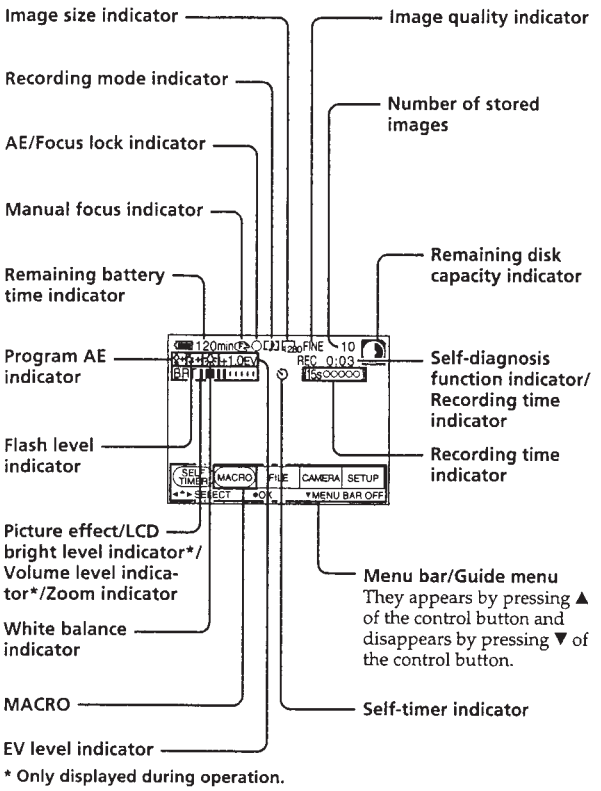
About 8 – 12 images(FD83)/6 – 10 images(FD88) with all default settings. (p. 36)

Note

When the image is recorded on the disk, the ACCESS lamp flashes. When the ACCESS lamp is flashing, never shake or strike the unit. Also, do not turn the power off or remove the battery pack or floppy disk. Otherwise, an image data breakdown may occur and the floppy disk may become unusable.

The indicators during recording

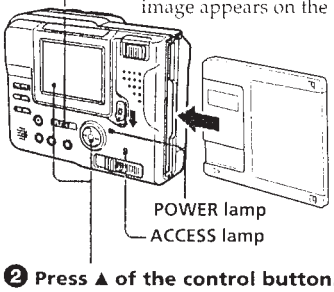
The indicators on the LCD screen are not recorded.



* Only displayed during operation.

3 Playing back still images

To view the recorded images on the LCD screen, slide POWER down to turn on the power (The POWER lamp lights up) and insert the floppy disk until clicks.



❶ Set PLAY/STILL/MOVIE to PLAY.
The ACCESS lamp flashes and the last recorded image appears on the LCD screen.

❷ Press ▲ of the control button.
The menu bar appears on the LCD screen.

❸ Select the recorded image with the control button.
Select the button on the LCD screen with the control button, then press ●.

I◄ : To display the preceding recorded image.
►I : To display the next image.
INDEX : To display six recorded images at a time (INDEX screen).

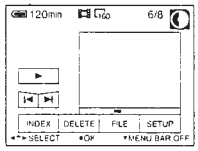
You can select the image with ◄/► of the control button if you turn off the menu bar.

4 Playing back moving images

❶ Set the PLAY/STILL/MOVIE to PLAY.
The last recorded image appears on the LCD screen.
The image recorded in MOVIE mode is displayed one-size smaller than the other normal-sized images.

❷ Press ▲ of the control button to display the menu bar on the LCD screen.

❸ Select the recorded moving image with the control button.
Select fast-forward/rewind buttons on the LCD screen with the control button, then press ●.



I◄ : To display the preceding recorded image.
►I : To display the next image.
INDEX : To display six recorded images at a time (INDEX screen).

Select the image with ◄/► of the control button, and then press ● to play back moving images and sounds if you turn off the menu bar.

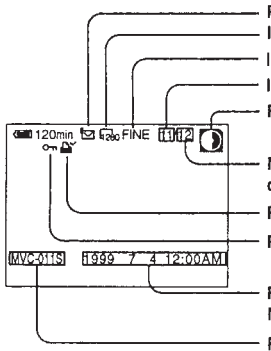
❹ Select the ► (playback) button on the screen with the control button, then press ●.
Moving images and sound are played back.

Note

- The images recorded by this camera may not be played back correctly by MVC-FD5/FD7/FD51/FD71/FD73/FD81/FD91/FDR1/FDR3.
- This camera cannot play back the image size which is more than 1600 × 1200.

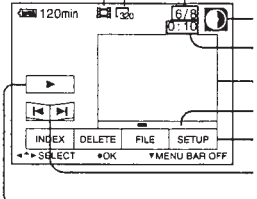
The indicators during playback

During playback still images (STILL)



Recording mode indicator
Image size indicator
Image quality
Image number
Remaining disk capacity indicator
Number of stored images in a floppy disk
Print mark indicator
Protect indicator
Recording date of the playback image/ Menu bar/Guide menu
File name

During playback moving images (MOVIE)/Still images with sounds (VOICE)



Moving image file indicator
Image size indicator
Image number/Number of stored image in a floppy disk
Remaining disk capacity indicator
Counter
Playback image*
Play bar
Menu bar and guide menu
Fast-forward/rewind buttons
Playback/playback pause button
► is displayed during stop, and ❚❚ during playback.

* When playing back a VOICE file, the playback image is full-screen.

Battery life/No. of images that can be recorded/played back

STILL mode

Battery		Battery life (min.)	No. of images (record/playback)
NP-F330 (Supplied)	Continuous recording*	55 (50)	550 (500)
	Continuous playing**	65 (60)	1700 (1500)
NP-F550	Continuous recording*	120 (110)	1200 (1050)
	Continuous playing**	140 (130)	3600 (3200)

Approximate battery life and no. of images that can be recorded/played back at a temperature of 77°F (25°C), 640 × 480 image size, in NORMAL recording and STANDARD quality mode. Numbers in parentheses indicate the time when using a normally charged battery. If you record other than 640 × 480 size images or use the flash, the no. of images that can be recorded is reduced from the above figures by about 20%.

* Recording at about 5 second intervals
** Playing back single image at about 2 second intervals

⇨ Recording and playing back images

MOVIE mode

Battery		Battery life (min.)	No. of images* (record)
NP-F330 (Supplied)	Continuous recording	75 (65)	53 (45)
NP-F550	Continuous recording	160 (140)	120 (100)

Approximate minutes that can be recorded at a temperature of 77°F (25°C) and 160 × 112 image size. Numbers in parentheses indicate the time when you use a normally charged battery.

- Battery life and no. of images will be decreased if you use the camera in a cold environment or while you repeat turning the power on/off and zooming.
- The capacity of a floppy disk is limited. The above figures are a guide when continuously recording/playing back while replacing the floppy disks.\

* For 5 sec. REC

⇨ Recording and playing back images

Notes

- To play back an MPEG file, install Active Movie Player (Direct Show).
- For playing back a file recorded in MOVIE or VOICE mode, first copy it to the hard disk of the personal computer. If you play back the file from a floppy disk, the picture and sound may break off.
- You cannot play back an MPEG file with Windows 3.1.
- For Macintosh, you can use the floppy disk recorded with this camera using the PC Exchange with Mac OS system 7.5 or higher. A viewing application for Macintosh is also necessary for viewing images. To play back an MPEG file, install Quick Time 3.0.

Viewing images using a personal computer

With this camera, the still image data is compressed in JPEG format and move image data is compressed with MPEG-1 format. These data can be viewed using a personal computer which installed JPEG and MPEG browsing software as Microsoft Internet Explorer 4.0. For further information to use the browsing software, refer to the personal computer instruction manual.

Example: personal computer with Windows 95/98 installed

1 Start up personal computer and insert the floppy disk into the disk drive of the personal computer.

2 Open "My computer" and double click "3.5 inch FD (A:)".

3 Double-click the desired data file.

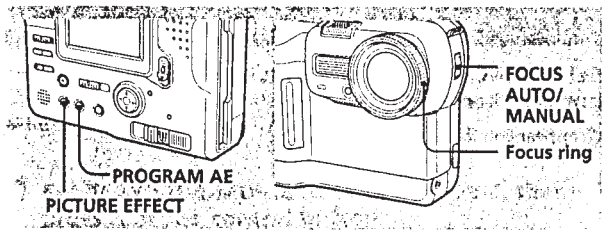
Recommended OS/applications example

OS
Windows 3.1, Windows 95/98 or later, Windows NT 3.51 or later, etc.

applications
Microsoft Internet Explorer 4.0, Netscape Navigator etc.

To display the image list, double-click "MAVICA.HTM" of the floppy disk recorded with this camera if your personal computer is installed with a browser such as Microsoft Internet Explorer.

Various recording



Focusing manually

1 Set FOCUS AUTO/MANUAL to MANUAL.
MF appears on the LCD screen.

2 Turn the focus ring to achieve a sharp focus.
MF changes as follows:
▲ : when recording a distant subject
▲ : when the subject is too close to focus on

To reactivate auto focusing, set FOCUS AUTO/MANUAL to AUTO.

Note

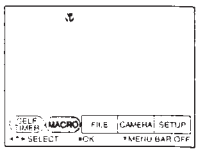
When recording in relatively dark environment, it is recommended to record after focusing manually, or set PROGRAM AE to Panfocus mode.

⇨ Various recording

Recording images in macro

Select MACRO from the menu bar with the control button, then press ●

appears on the LCD screen.



You can shoot a subject that is about 1cm(FD83)/4cm(FD88) away from the lens surface in the wide-angle position.

To cancel the macro mode

Select MACRO from the menu bar again with the control button, then press ●.

disappears.

Note

You cannot record images in macro with following PROGRAM AE modes (appears on the LCD screen):
- Sunset & Moon mode
- Landscape mode
- Panfocus mode

Adjusting the white balance

White balance adjustment makes white subject look white and allows more natural color balance for camera recording. Normally white balance is automatically adjusted.

1 Set PLAY/STILL/MOVIE to STILL or MOVIE, then press ▲ of the control button.

The menu bar appears on the LCD screen.

2 Select CAMERA with control button, then press ●.

3 Select WHITE BALANCE with control button, then press ●.

4 Select desired white balance, then press ●.

AUTO:
to adjust the white balance automatically

IN DOOR (☼) :
- if the lighting conditions, like those at a party, are changing
- if the picture is being taken in a studio lit by TV lighting
- if the subject is being lit by sodium- or mercury-vapor lamps

OUT DOOR (☀) :
- at night-time with neon or fireworks in the picture
- at sunset or sundown
- under daytime-fluorescent light

HOLD:
to record a single-colored subject or background

5 Press ▼ of the control button repeatedly.

The camera menu dissapears.

⇨ Various recording

Enjoying Picture Effect

Press PICTURE EFFECT repeatedly to select the desired picture effect mode.

NEG. ART: The color and brightness of the picture is reversed.
SEPIA: The picture is sepia.
B&W: The picture is monochrome (black and white).
SOLARIZE: The light intensity is more clear, and the picture looks an illustlation.

To cancel picture effect

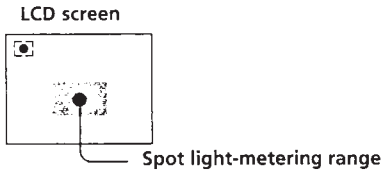
Press PICTURE EFFECT repeatedly until the indicator on the LCD screen goes out. When you turn the power off or set PLAY/STILL/MOVIE to PLAY, the picture effect is automatically cancelled.

Using the PROGRAM AE function

You can select one of six PROGRAM AE (Auto Exposure) modes to suit your shooting situation, referring to the following.

Press PROGRAM AE repeatedly to select the desired PROGRAM AE mode.

Spot light-metering mode
For recording subjects with backlight or strong contrast between subjects and background. Use this mode to take a picture with the appropriate exposure for just the point you want to focus on.



Low Lux 1 mode
For making subjects brighter in insufficient light.

Low Lux 2 mode
For recording a dark picture more brightly, or making the movement of the subject brighter seem lively.

Sunset & Moon mode
For recording subjects in dark environments such as sunsets, fireworks, neon signs, or general night views.

Landscape mode
For distant subjects such as mountains behind an obstacle such as a window or screen.

Panfocus mode
For changing the subject to focus on quickly and simply (from close subjects to distant subjects). Or, for recording with flash in a dark place where it is hard to bring the camera into focus.

⇨ Various recording

To cancel PROGRAM AE

Press PROGRAM AE repeatedly until the indicator on the LCD screen goes out.

Notes on focus settings

- You can focus only on distance subjects in Sunset & Moon and Landscape modes.
- In Pantocus mode, the zoom position and focus are fixed.
- When you record in the Low Lux 1/Low Lux 2 mode, we recommend that you use a tripod to compensate for camera-shake.
- Set the flash mode to forced-flash when you use flash in the following mode:
  Low Lux 1 mode, Low Lux 2 mode, Sunset & Moon mode, or Landscape mode.

⇨ Various recording

Selecting image size

You can change the image size for your purpose.

1 Set PLAY/STILL/MOVIE to MOVIE or STILL, then press ▲ of the control button.
The menu bar appears on the LCD screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

3 Select IMAGE SIZE with the control button, then press ●.

Items for STILL mode
1280 × 960 : Records a 1280 × 960 JPEG file. (FD88 only)
1216 × 912 : Records a 1216 × 912 JPEG file. (FD83 only)
1024 × 768 : Records a 1024 × 768 JPEG file.
640 × 480 : Records a 640 × 480 JPEG file.

Items for MOVIE mode
320 × 240 : Records a 320 × 240 MPEG file.
160 × 112 : Records a 160 × 112 MPEG file.

4 Select the desired image size with the control button, then press ●.

5 Press ▼ of the control button repeatedly.
The menu bar disappears from the screen.

Selecting image quality (QUALITY)

You can select one of two available image quality modes. The number of images you can record is different depending on which image quality mode you select.

1 Set PLAY/STILL/MOVIE to STILL, then press ▲ of the control button.
The menu bar appears on the LCD screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

3 Select QUALITY with the control button, then press ●.
FINE :Use this mode when giving priority to image quality.
STANDARD: Use this mode as a standard image quality.

4 Select image quality with the control button, then press ●.

5 Press ▼ of the control button repeatedly.
The menu bar disappears from the screen.

Selecting recording mode (REC MODE)

You can record a still image and sound togeter or a still image which is suitable for e-mail transmission.

1 Set PLAY/STILL/MOVIE to STILL, then press ▲ of the control button.
The menu bar appears on the LCD screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

3 Select REC MODE with the control button, then press ●.
VOICE : Records a still image and sound together besides a JPEG file.
E-MAIL : Records a 320 × 240 JPEG file besides a selected image size. E-mail files are suitable for e-mail transmission because they contain compressed data.
NORMAL : Records a JPEG file in selected image size.

4 Select the desired recording mode with the control button, then press ●.

5 Press ▼ of the control button repeatedly.
The menu bar disappears from the screen.

⇨ Various recording

Recording mode	Image size	Recorded file	File name (ex.)* MVC-	No. of images that can be recorded on a floppy disk STANDARD	FINE
NORMAL	**1280 × 960	JPEG (1280 × 960)	001F.JPG	6 – 10	4 – 6
		For index screen	001F.411		
	***1216 × 912	JPEG (1216 × 912)	001F.JPG	8 – 12	5 – 8
		For index screen	001F.411		
	1024 × 768	JPEG (1024 × 768)	001F.JPG	10 – 16	6 – 8
		For index screen	001F.411		
	640 × 480	JPEG (640 × 480)	001F.JPG	25 – 40	15 – 20
		For index screen	001F.411		
E-MAIL	**1280 × 960	JPEG (1280 × 960) × JPEG (320 × 240)	001F.JPG 001E.JPG	5 – 10	3 – 6
		For index screen	001F.411		
	***1216 × 912	JPEG (1216 × 912) × JPEG (320 × 240)	001F.JPG 001E.JPG	7 – 12	4 – 8
		For index screen	001F.411		
	1024 × 768	JPEG (1024 × 768) × JPEG (320 × 240)	001F.JPG 001E.JPG	9 – 14	5 – 7
		For index screen	001F.411		
	640 × 480	JPEG (640 × 480) × JPEG (320 × 240)	001F.JPG 001E.JPG	20 – 35	12 – 15
		For index screen	001F.411		
VOICE	**1280 × 960	JPEG (1280 × 960) MPEG audio with still image (320 × 240)	001F.JPG 001A.MPG	3 – 6	2 – 5
		For index screen	001F.411		
	***1216 × 912	JPEG (1216 × 912) MPEG audio with still image (320 × 240)	001F.JPG 001A.MPG	4 – 7	3 – 6
		For index screen	001F.411		
	1024 × 768	JPEG (1024 × 768) MPEG audio with still image (320 × 240)	001F.JPG 001A.MPG	4 – 9	3 – 6
		For index screen	001F.411		
	640 × 480	JPEG (640 × 480) MPEG audio with still image (320 × 240)	001F.JPG 001A.MPG	5 – 14	4 – 10
		For index screen	001F.411		

* If you record images in STANDARD quality mode, the last character of file name will be "S". (ex. MVC-001**S**.JPG)
** MVC-FD88 only
*** MVC-FD83 only (Interpolated Mega Pixel Images)

Notes

- The file data for index screen is a available only on this camera.
- If you attempt to record 55 images or above, "DISK FULL" appears on the LCD screen and you cannot record the image even when the remaining disk capacity indicator is not emptied.
- 320 × 240 size E-mail files are stored in another folder. The compression ratio is standard and does not depend on the image quality settings.
- When the remaining disk capacity indicator flashes, image and sound data cannot be recorded.

Various playback

Playing back multiple images at a time (INDEX)

You can play back six recorded images at a time. You can also select a specific image from the six images and enlarge it to full-size. This function is useful for searching for an image you want from all the recorded images.

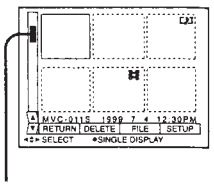
1 Set PLAY/STILL/MOVIE to PLAY, then press ▲ of the control button.

The menu bar appears on the LCD screen.

2 Select INDEX with the control button, then press ●.

Six images are displayed at a time (INDEX screen).

: Moving image file
: Still image with sound file
: E-mail mode file
: Print mark
: Protect mark



Showing the position of an image whose number is displayed

To display other six images

Select ▲/▼ at the lower left on the screen with ◀ of the control button, then press ▲/▼ of the control button.

▲	Displays preceding six images
▼	Displays following six images

To return to the normal playback screen (Single screen)

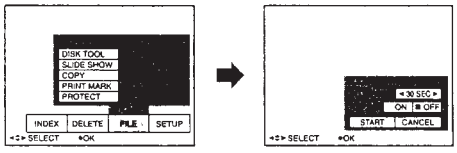
Select the desired image with the control button, then press ●.

Playing back images in a continuous loop – SLIDE SHOW

1 Press ▲ of the control button to display the menu bar.

2 Select "FILE" with the control button, then press ●.

3 Select "SLIDE SHOW" with the control button, then press ●.



4 Enter each item with the control button, then press ●.

INTERVAL : 3 seconds, 5 seconds, 10 seconds, 30 seconds, 1 minute.
REPEAT ON : Repeat play back until "CANCEL" is selected (up to 20 minutes).
OFF : Slide show ends after all images are played back.

5 Select "START" with the control button, then press ●.

Slide show starts.
To turn off the indicators on the LCD screen, press ▼ of the control button or DISPLAY.

⇨ Various playback

To cancel setting the slide show
Select CANCEL with the control button in step 5, then press ●.

Operation during slide show
Pause: Select ❚❚ with the control button, then press ●.
Start: Select ► with the control button, then press ●.
Display the preceding or next image: Press ⏮ or ⏭ on the LCD screen or control panel.

Preventing accidental erasure – PROTECT

To prevent accidental erasure, you can protect all or selected image.

In single mode

1 Set PLAY/STILL/MOVIE to PLAY, then display the images to protect.

2 Press ▲ of the control button.
The menu bar appears on the LCD screen.

3 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

4 Select PROTECT with the control button, then press ●.

5 Select ON with the control button, then press ●.
The displayed image is protected.

6 Press ▼ of the control button repeatedly.
🔑 appears on the protected image.
The menu bar disappears from the screen.

⇨ Various playback

To release protection
Select OFF with the control button in step 5, then press ●.

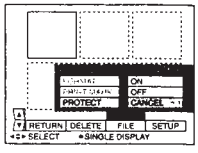
In INDEX mode

1 Display the INDEX screen.

2 Select PROTECT of the FILE menu with the control button, then press ●.
The FILE menu appears on the LCD screen.

3 Select ALL to protect (or unprotect) all images, or SELECT to protect (or unprotect) selected images with the control button, then press ●.

<When selecting ALL>
To protect all images
Select ON with the control button, then press ●.

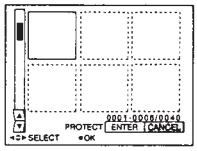


To release protection of all images
Select OFF with the control button, then press ●.

<When selecting SELECT>
To protect images

❶ Select the image to protect with the control button, then press ●.
The 🔑 (green) appears on the selected image.

❷ After selecting all images to protect, select ENTER with the control button, then press ●.
The color of the 🔑 changes from green to white.



To release protection
Select the image to unprotect in the step ❶. And select ENTER with the control button, then press ●.

⇨ Various playback

Deleting images – DELETE

You can delete all or selected images that you no longer want to keep.

In single mode

1 Set PLAY/STILL/MOVIE to PLAY.

2 Press ▲ of the control button.
The menu bar appears on the LCD screen.

3 Select DELETE with the control button, then press ●.

4 Select ON with the control button, then press ●.
The displayed image is deleted.

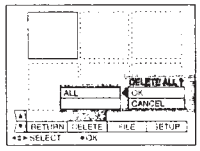
In INDEX mode

1 Display the INDEX screen.

2 Select DELETE with the control button, then press ●.

3 Select ALL to delete all images or SELECT to delete selected images with the control button, then press ●.

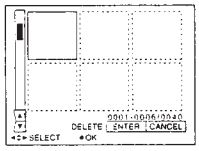
<When selecting ALL>
Select OK with the control button, then press ●.



<When selecting SELECT>

❶ Select the image to delete with the control button, then press ●.
The 🗑 (green) appears on the selected image.

❷ After selecting all images to delete, select ENTER with the control button, then press ●.
The selected images are deleted.



To cancel deleting
Select CANCEL with the control button, then press ●.

⇨ Various playback

Copying images – COPY

In single mode

1 Set PLAY/STILL/MOVIE to PLAY.

2 Press ▲ of the control button.
The menu bar appears on the LCD screen.

3 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

4 Select COPY with the control button, then press ●.

5 Select OK with the control button, then press ●. "CHANGE FLOPPY DISK" is displayed.

6 Eject the floppy disk.
"INSERT FLOPPY DISK" is displayed.

7 Insert another floppy disk until you hear it clicks.
"RECORDING" is displayed.

8 Once copying is completed, the message "COMPLETE" is displayed.
To copy images to another floppy disk, select "CONTINUE" with the control button and repeat the operations in steps 6 through 8 above.
To discontinue copying, select EXIT with the control button.

In INDEX mode

1 Display the INDEX screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

3 Select COPY with the control button, then press ●.

4 Select ALL or SELECT.

5 Select OK if you select ALL in step 4. Otherwise select the image you want to copy with the control button, then press ● to display the ✓ on the image. And repeat the same procedure until you select all images to copy, then select ENTER with the control button.
"CHANGE FLOPPY DISK" is displayed.

6 Eject the floppy disk.
"INSERT FLOPPY DISK" is displayed.

7 Insert another floppy disk until you hear it clicks.
"RECORDING" is displayed.

8 Once copying is completed, the message "COMPLETE" is displayed.
To copy images to another floppy disk, select CONTINUE with the control button and repeat the procedures in steps 6 through 8 above.
To discontinue copying, select EXIT with the control button.

Notes

- When you copy to the floppy disk which has a small remaining capacity, "DISK FULL" may appear on the LCD screen.
- To discontinue copying onto a floppy disk, change PLAY/STILL/MOVIE mode or turn off your camera.

⇨Various playback

Copying all the infomation in your floppy disk – DISK COPY

You can copy to another disk not only the images you have recorded with your camera but also various files you have created in other software with your PC.

1 Select DISK COPY, then OK.
"FILE ACCESS" is displayed.

2 When "CHANGE FLOPPY DISK" is displayed, eject the floppy disk.

3 When "INSERT FLOPPY DISK" is displayed, insert another disk.
"RECORDING" is displayed.

4 Once copying is completed, the message "COMPLETE" is displayed.
To copy all the infomation to another floppy disk, select CONTINUE with the control button and repeat the procedures in steps 2 through 4 above.
. To discontinue copying, select EXIT with the control button.

Notes

- When you copy to the floppy disk which has a small remaining capacity, "DISK FULL" may appear on the LCD screen.
- To discontinue copying onto a floppy disk, change PLAY/STILL/MOVIE mode or turn off your camera.

Formatting a floppy disk – FORMAT

1 Press ▲ of the control button.
The menu bar appears on the LCD screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears.

3 Select FORMAT in the DISK TOOL with the control button, then press ●.

4 Select OK with the control button, then press ●.

To cancel formatting
Select CANCEL with the control button in step 4, then press ●.

Note

- When you format a floppy disk, all data stored in the floppy disk will be deleted. Check the contents of the floppy disk before formatting. Note that even protected images will be deleted.
- Make sure if the battery back is charged enough before formatting. Formatting takes about 30 seconds.

⇨Various playback

Writing a print mark on an image

You can specify the recorded still image to print out. This function is useful for printing out still images to print out.
Your camera conforms with the DPOF (Digital Print Order Format) standard for specifying the still images to print out.

In single mode

1 Set PLAY/STILL/MOVIE to PLAY, and display the image to write a print mark.

2 Press ▲ of the control button.
The menu bar appears on the LCD screen.

3 Select FILE with the control button, then press ●.
The FILE menu appears on the LCD screen.

4 Select PRINT MARK with the control button, then press ●.

5 Select ON with the control button, then press ●.
DISK ACCESS appears on the LCD screen.

6 Press ▼ of the control button repeatedly.
The menu bar disappears from the scree.

To cancel the print mark
Select OFF with the control button in step 5, then press ●.

In INDEX mode

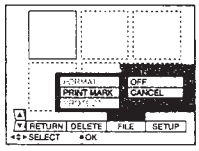
1 Display INDEX screen.

2 Select FILE with the control button, then press ●.
The FILE menu appears on the screen.

3 Select PRINT MARK with the control button, then press ●.
The FILE menu appears on the LCD screen.

4 Select ALL to cancel a print mark on all images or SELECT to write (or cancel) a print mark on selected images with the control button, then press ●.

<When selecting ALL>
To cancel the all print marks
Select OFF with the control button, then press ●.



<When selecting SELECT>
To write a print mark

❶ **Select the image to write a print mark with the control button, then press ●.**
The 🖶 (green) appears on the selected image.

❷ **After selecting all the images to write a print mark, select ENTER with the control button, then press it.**
The color of 🖶 changes from green to white.

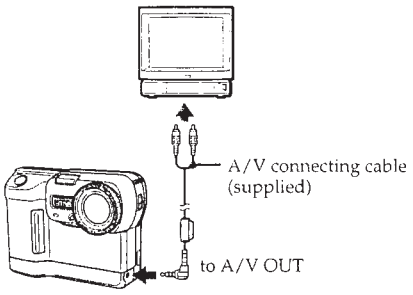
To cancel the selected print mark
Select the images to cancel in step 1.
And select ENTER with the control button, then press ●.

⇨ Various playback

Using image data with other equipment

Viewing the images on TV

Connect the camera to the TV that has a video and audio input jack. Adjust VIDEO OUT (NTSC/PAL) in the menu settings before viewing the images on TV. (p. 56, 58, 59)



1 Connect the A/V OUT jack of the camera to the video and audio input jack of the TV.

2 Set the TV/VIDEO input select on the TV to VIDEO.

3 Start playback on the camera.

Playback picture appears on the TV screen.

Notes

- Before making connections, turn off each equipment. After connections are completed, turn on each equipment.
- When you use the camera with connecting other equipment for a long time, use the AC power adaptor/charger (not supplied).
- You cannot use a TV that has an antenna (aerial) connector only.
- Beep does not sound when connecting with the A/V connecting cable.
- When the audio input jack of TV is stereo type, connect the audio plug of the A/V connecting cable to a audio output jack (white) of TV.
- When you record images connecting your camera with TV, the sound is muted.
- When you connect the A/V connecting cable to TV, the display of your camera turns off.

⇨ Changing the mode settings

Setting the mode of each item

● is set at the factory.

Menu items that can be modified differ depending on the setting of the MODE selector. The LCD screen shows only the items you can operate at the moment.

Items in STILL or MOVIE mode

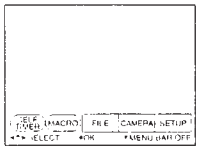
Menu	Item1	Item2	Setting	Meaning
SELF TIMER				To record with self-timer. (p. 11)
MACRO			ON	To record in macro
			OFF	To record normally
FILE	DISK TOOL	FORMAT	OK	To format the floppy disk loaded in the camera "FORMATTING" is displayed during formatting, then it disappears after the completion.
			CANCEL	To cancel formatting
		DISKCOPY	OK	To copy all data stored in a floppy disk to another
			CANCEL	To cancel copying all data stored in a floppy disk to another
		CANCEL		To cancel formatting or copying all data stored in a floppy disk to another
	FILE NUMBER		SERIES	To put numbers into files in sequence even if the floppy disk is changed
			● NORMAL	To reset the numbering of files each time the floppy disk changed
	IMAGE SIZE (in STILL mode)		● 1280 × 960	To record a 1280 × 960 JPEG image (FD88 only)
			● 1216 × 912	To record a 1216 × 912 JPEG image (FD83 only)
			1024 × 768	To record a 1024 × 768 JPEG image
			640 × 480	To record a 640 × 480 JPEG image

Changing the mode settings

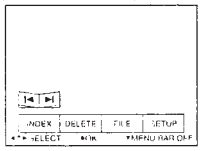
1 Press ▲ of the control button.

The menu bar appears on the LCD screen.

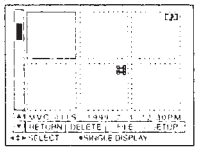
Items in STILL or MOVIE mode



Items in PLAY mode (SINGLE screen)

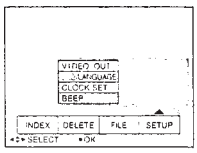


Items in PLAY mode (INDEX screen)



2 Select desired item with the control button, then press ●.

When an item is selected, the color of the item changes from blue to yellow.



3 Change the setting with the control button, then press ●.

When the setting is finished, the menu screen returns to the screen of step 1.

To cancel changing the mode settings

Press ▼ of the control button. The screen returns to the menu screen. To cancel the menu screen, press ▼ of the control button repeatedly.

Menu	Item1	Item2	Setting	Meaning
	IMAGE SIZE (in MOVIE mode)		320 × 240	To record a 320 × 240 MPEG image
			● 160 × 112	To record a 160 × 112 MPEG image
	QUALITY		FINE	To give priority to image quality
			● STANDARD	To record as a standard image quality
	REC MODE (in STILL mode)		VOICE	To record a still image and sound together besides a JPEG file **Press the shutter button down momentarily.** The sound is recorded for 5 seconds. **Hold the shutter button down.** The sound is recorded until you release it. (Maximum 40 seconds)
			E-MAIL	To record a 320 × 240 JPEG file. E-mail files are suitable for e-mail transmission because they contain compressed data.
			● NORMAL	To record a JPEG file in selected image size
	REC TIME SET (in MOVIE mode)		15 SEC	To record a moving image for 15 seconds
			10 SEC	To record a moving image for 10 seconds
			● 5 SEC	To record a moving image for 5 seconds
CAMERA	DIGITAL ZOOM		● ON	To turn on digital zoom
			OFF	To turn off digital zoom
	WHITE BALANCE		● AUTO	See page 29 for more information.
			IN DOOR	
			OUT DOOR	
			HOLD	

⇨ **Changing the mode settings**

Menu	Item1	Item2	Setting	Meaning
	FLASH LEVEL		HIGH	To make the flash level higher than normal
			● NORMAL	To record normally
			LOW	To make the flash level lower than normal
	EXPOSURE		+1.5 to –1.5	To adjust exposure
SETUP	DEMO* MODE		● STBY/ON	To make the demonstration appear
			OFF	To deactivate the demonstration mode
	VIDEO OUT		NTSC	To set the video signal NTSC mode
			PAL	To set the video signal PAL mode
	言語 / LANGUAGE		● ENGLISH	To display menu items in English
			日本語 / JPN	To display menu items in Japanese
	CLOCK SET			To set the date and time
	BEEP		SHUTTER	To turn off the beep only
			● ON	To turn on the beep and shutter sound
			OFF	To turn off the beep and shutter sound

* Only when you use the AC adaptor (not supplied), DEMO MODE appears in the menu.

⇨ **Changing the mode settings**

Menu	Item1	Item2	Setting	Meaning
SETUP	VIDEO OUT		NTSC	To set the video signal NTSC mode
			PAL	To set the video signal PAL mode
	言語 / LANGUAGE		● ENGLISH	To display menu items in English
			日本語 / JPN	To display menu items in Japanese
	CLOCK SET			To set the date and time
	BEEP		SHUTTER	To turn off the beep only
			● ON	To turn on the beep and shutter sound
			OFF	To turn off the beep and shutter sound

Items in PLAY (INDEX) mode

Menu	Item1	Item2	Setting	Meaning
RETURN				To return to the single screen
DELETE	ALL		OK	To delete all images
			CANCEL	To cancel deleting image
	● SELECT		OK	To delete selected images
			CANCEL	To cancel deleting the images
FILE	DISK TOOL	FORMAT	OK	To format the floppy disk loaded in the camera "FORMATTING" is displayed during formatting, then it disappears after the completion.
			CANCEL	To cancel formatting
		DISKCOPY	OK	To copy all data stored in a floppy disk to another
			CANCEL	To cancel copying all data stored in a floppy disk to another
		CANCEL		To cancel formatting or copying all data stored in a floppy disk to another

Items in PLAY (single) mode

Menu	Item1	Item2	Setting	Meaning
INDEX				To display six recorded images at a time
DELETE			OK	To delete a displayed image
			CANCEL	To cancel deleting the image
FILE	DISK TOOL	FORMAT	OK	To format the floppy disk loaded in the camera "FORMATTING" is displayed during formatting, then it disappears after the completion.
			CANCEL	To cancel formatting
		DISKCOPY	OK	To copy all data stored in a floppy disk to another
			CANCEL	To cancel copying all data stored in a floppy disk to another
		CANCEL		To cancel formatting or copying all data stored in a floppy disk to another
	SLIDE SHOW		INTERVAL	To set an interval between images
			REPEAT	To repeat the slide show (up to about 20 minutes)
			START	To start the slide show
			CANCEL	To cancel the slide show and the setting of the slide show
	COPY		OK	To copy a displayed image
			CANCEL	To cancel copying the image
	PRINT MARK		ON	To write the print mark on the image
			● OFF	To delete the print mark
	PROTECT		ON	To protect the display image
			● OFF	To release protection of the image

Menu	Item1	Item2	Setting	Meaning
	COPY	ALL	OK	To copy all images
			CANCEL	To cancel copying the images
		SELECT	ENTER	To copy selected images
			CANCEL	To cancel copying the images
		CANCEL		To cancel copying the images
	PRINT MARK	ALL	OFF	To delete print marks on all images
			CANCEL	To cancel deleting print marks
		SELECT	ENTER	To write print marks on selected images
			CANCEL	To cancel writing print marks
		CANCEL		To cancel writing or deleting print marks
	PROTECT	ALL	ON	To protect all images
			OFF	To release protection on all images
			CANCEL	To cancel protecting or releasing protection
		SELECT	ENTER	To protect selected images or releasing protection on selected images
			OFF	To cancel protecting selected images or releasing protection
		CANCEL		To cancel protecting images or releasing protection of images
SETUP	VIDEO OUT		NTSC	To set the video signal NTSC mode
			PAL	To set the video signal PAL mode
	言語 / LANGUAGE		● ENGLISH	To display menu items in English
			日本語 / JPN	To display menu items in Japanese
	CLOCK SET			To set the date and time
	BEEP		SHUTTER	To turn off the beep only
			● ON	To turn on the beep and shutter sound
			OFF	To turn off the beep and shutter sound

Precautions

On cleaning

Cleaning the LCD screen

Wipe the screen surface with a LCD cleaning kit (not supplied) to remove fingerprints, dust, etc.

Cleaning the camera surface

Clean the camera surface with a soft cloth slightly moistened with water. Do not use any type of solvent such as alcohol or benzene as it may mar the finish of the casing.

Using the camera on a sandy beach or in a dusty place

Do not let sand get into the camera. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired.

Concerning floppy disks

To protect data recorded on floppy disk, note the following:

- Avoid storing floppy disks near magnets or magnetic fields such as those of speakers and televisions, permanent erasure of disk data may result.
- Avoid storing floppy disks in areas subject to direct sunlight or sources of high temperature, such as a heating device. Floppy disk warping or damage may result, rendering the disk useless.
- Avoid contact with the disk's surface by opening the disk shutter plate. If the disk's surface becomes blemished, data may be rendered unreadable.
- Avoid getting liquids on the floppy disk.
- Be sure to use a floppy disk case to ensure protection of important data.
- Use only a 2HD or a 2DD dried type disk head cleaner when cleaning the disk drive.
- Even when you use a 3.5 inch 2HD floppy disk, image data may not be recorded and/or displayed depending on the using environment. In this case, use other brand disks.

Operational temperature recommendations

This camera's operational temperature is between 32°F to +104°F (0°C to +40°C). Do not use this camera in extreme climates outside the operational temperature range.

Moisture condensation

If the camera is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense inside or outside the camera. Should this occur, the camera will not operate properly. In this case, remove the floppy disk, turn off the camera, and wait about an hour for the moisture to evaporate.

To prevent moisture condensation

When bringing the camera from a cold place to a warm place, put the camera in a plastic bag and allow it to adapt to room conditions over a period of time.

① Be sure to tightly seal the plastic bag containing the camera.
② Remove the bag when the air temperature inside it has reached the temperature surrounding it (about 1 hour).

Troubleshooting

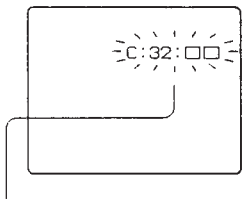
Should any problem persist after you have made those checks, consult your nearest Sony dealer. **If "C: □□: □□" appears on the LCD screen, the self-diagnosis function has worked. See page 64.**

Symptom	Cause and/or Solution
The camera does not work.	• The camera does not operate when using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 14) • The floppy disk is not installed properly. → Remove the disk and reinstall it. (p. 9)
You cannot record images.	• PLAY/STILL/MOVIE is not set to STILL or MOVIE. → Set it to STILL or MOVIE. (p. 17, 18) • No floppy disk has been installed. → Install a formatted floppy disk. • The tab on the disk is set to the non-recording position. → Set it to the recording position. (p. 9)
The picture is noisy.	• The camera is placed near a TV or other equipment that uses strong magnets. → Place the camera away from the TV, etc.
The picture is too dark.	• You are shooting a subject with the light source behind the subject or light is insufficient. → Adjust brightness of the image. (p. 56) • The LCD screen adjustment is too dark. → Adjust brightness. (p. 10)
The flash does not work.	• The no flash mode is set. → Set it to the AUTO or forced-flash mode. (p. 11)
Incorrect date and time are recorded.	• The date and time are not set. → Set the date and time. (p. 15)
Vertical streaks appear when shooting a very bright subject.	• The smear phenomenon. → The camera is not malfunctioning.

Symptom	Cause and/or Solution
The battery life deteriorates too fast.	• The ambient temperature is too low. • Charging of the battery pack is not enough. → Charge the battery pack fully. • The battery pack has served its time. → Replace the battery pack with a new one.
Zoom does not work.	• Panfocus mode in PROGRAM AE is working. → Cancel it. (p. 31)
You cannot play back the images on the LCD screen.	• PLAY/STILL/MOVIE is not set to PLAY. → Set it to PLAY. (p. 20, 21) • The battery is dead. → Use a charged battery pack.
The picture and sound break off when you play back the images using a personal computer.	• The image file is on a floppy disk. → Copy to the hard disk of a personal computer. Then play back the image from the hard disk. (p. 25)
You cannot play back the image using a personal computer.	• Contact your personal computer maker or software maker.
You cannot delete an image.	• The image is protected. → Cancel the protection of the image. (p. 41)
The power turns off automatically.	• If you leave the camera inactive in STILL/MOVIE mode for about 3 minutes while the power is on, it turns off automatically to prevent wearing down the battery. → Turn the power on.
The picture does not appear on the TV screen.	• VIDEO OUT setting is not correct. → Change the setting. (p. 56, 58, 59)
SLIDE SHOW stops automatically.	• The maximum length to play back is about 20 minutes. → Set REPEAT to ON again if you continue SLIDE SHOW. (p. 39)
FILE ERROR appears on the LCD screen.	• Image size is bigger than 1600 × 1200. → You cannot play back the image on your camera.
Digital zoom does not work.	• PLAY/STILL/MOVIE is set to MOVIE. → Set to STILL.

Self-diagnosis display

The camera has a self-diagnosis display. This function displays the camera condition with five-digits (a combination of a letter and figures) on the LCD screen. If this occurs, check the following code chart. The five-digit display informs you of the camera's current condition. The last two digits (indicated by □□) will differ depending on the state of the camera.



Self-diagnosis display

- C: □□: □□
  You can reverse the camera malfunction yourself.
- E: □□: □□
  Contact your Sony dealer or local authorized Sony service facility.

First three digits	Cause and/or Corrective Action
C:32:□□	• Trouble is with the disk drive. →Turn the power off and on again.
C:13:□□	• An unformatted disk is installed. →Format the disk. (p. 49) • An unusable disk with the camera is installed. →Change the disk. (p. 9)
E:91:□□ E:61:□□	• A camera malfunction which you can not reverse has occurred. →Contact your Sony dealer or local authorized Sony service facility and inform them of the five digits. (example: E:61:10)

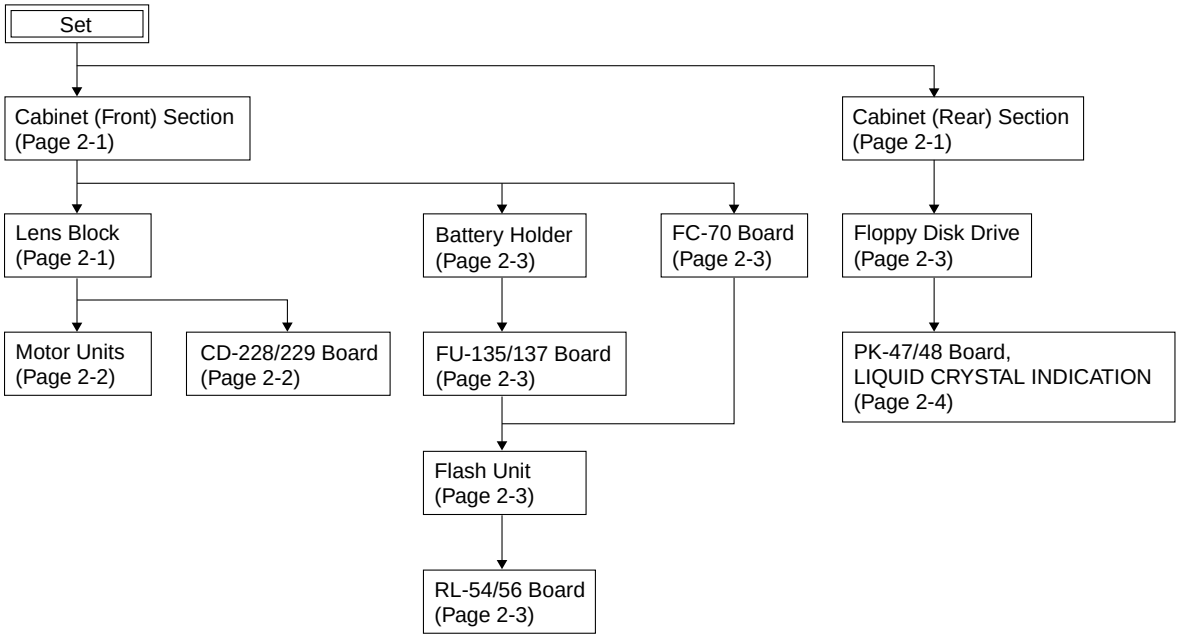
Warning messages

Various messages appear on the LCD screen. Check them with the following list.

Message	Meaning
DRIVE ERROR	Trouble is with the disk drive.
NO DISK	No disk has been inserted.
DISK ERROR	Trouble is with the disk.
DISK TYPE ERROR	The floppy disk loaded is not MS-DOS formatted (512 bytes × 18 sectors).
DISK PROTECT	The tab on the disk is set to the non-recording position.
DISK FULL	The disk is full.
NO FILE	No image has been recorded on the disk.
FILE ERROR	Trouble has occurred during playback.
FILE PROTECT	The image is protected.

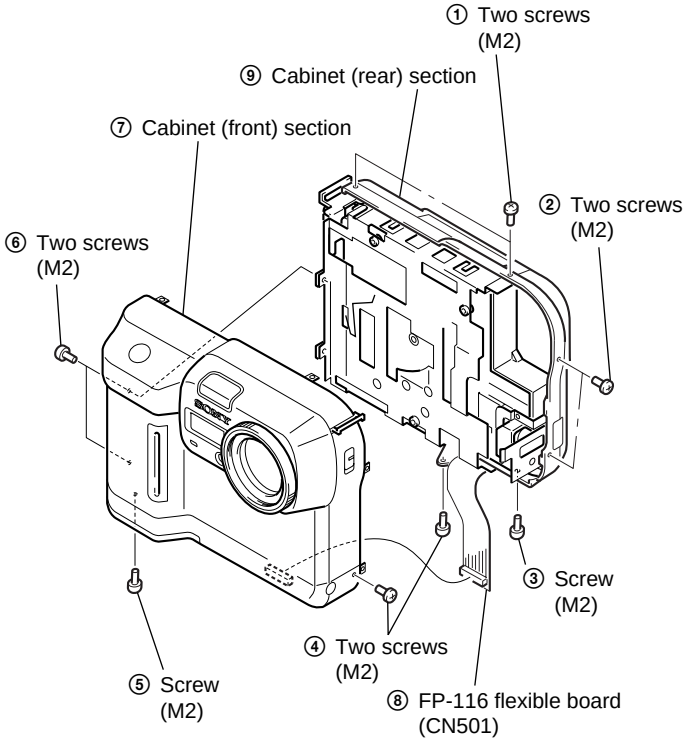
SECTION 2
DISASSEMBLY

- This set can be disassembled in the order shown below.

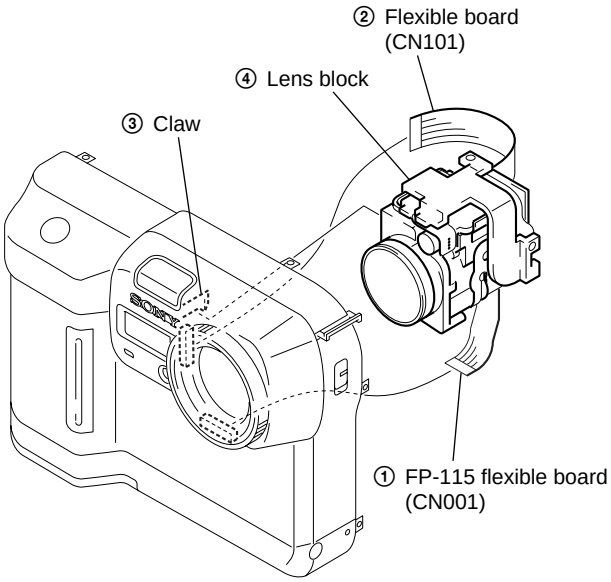


Note: Follow the disassembly procedure in the numerical order given.

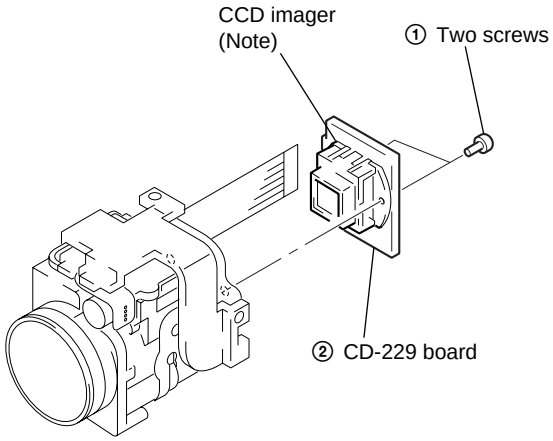
2-1. CABINET (FRONT) SECTION



2-2. LENS BLOCK

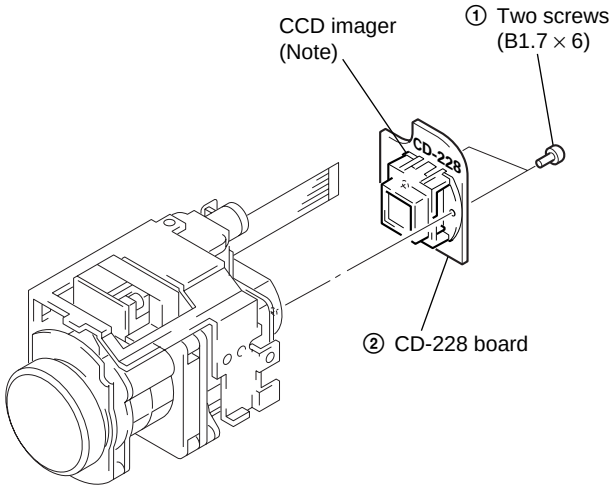


2-3. CD-229 BOARD (FD83)



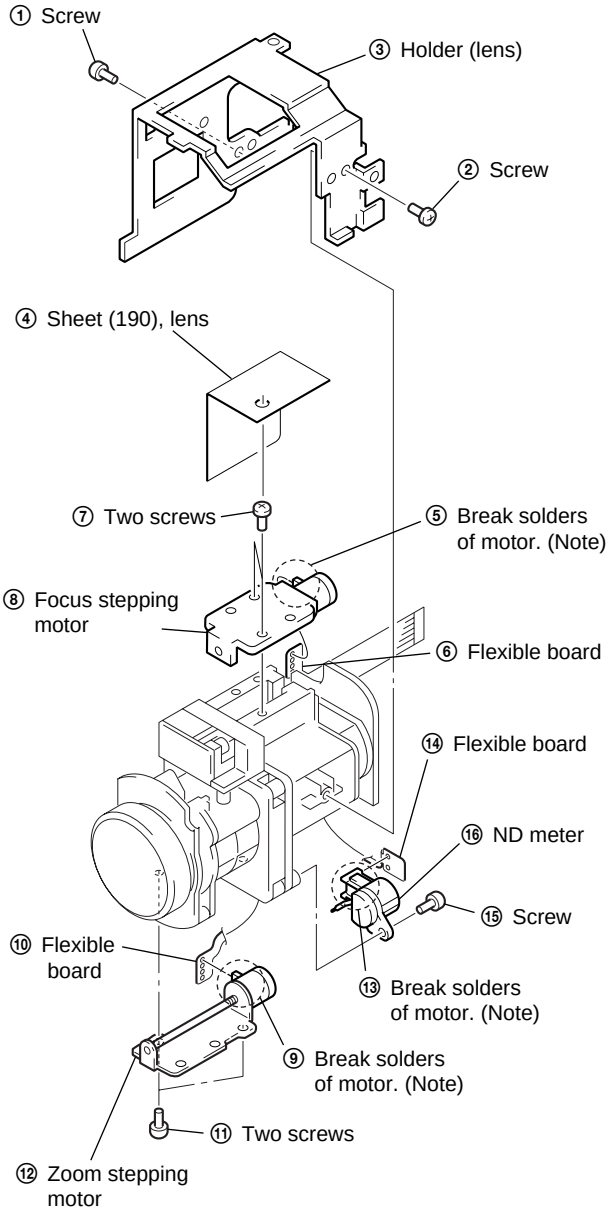
(Note) Be sure to read “Precautions for Replacement of CCD Imager” on page 4-8 when changing the CCD imager.

2-4. CD-228 BOARD (FD88)



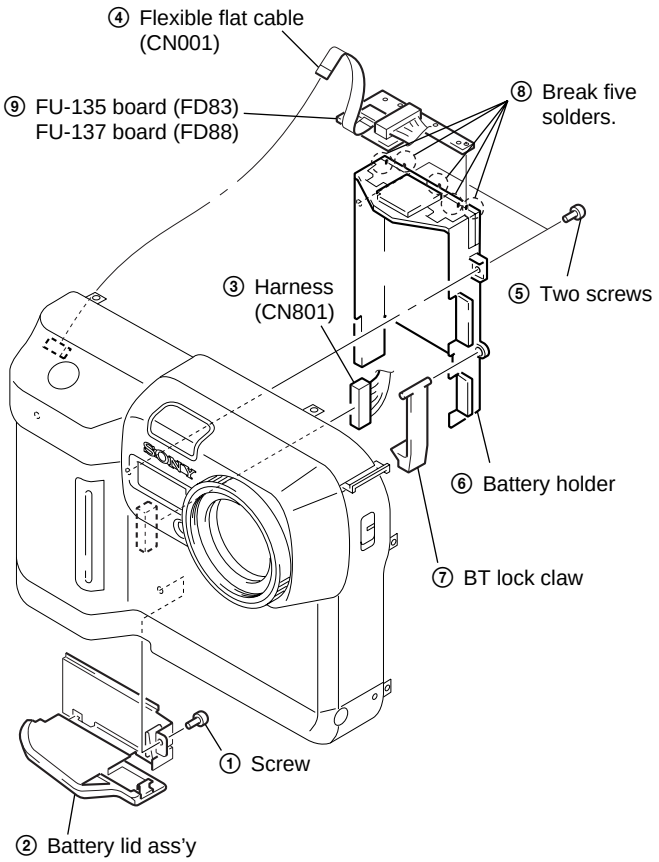
(Note) Be sure to read “Precautions for Replacement of CCD Imager” on page 4-6 when changing the CCD imager.

2-5. MOTOR UNITS (FD88)

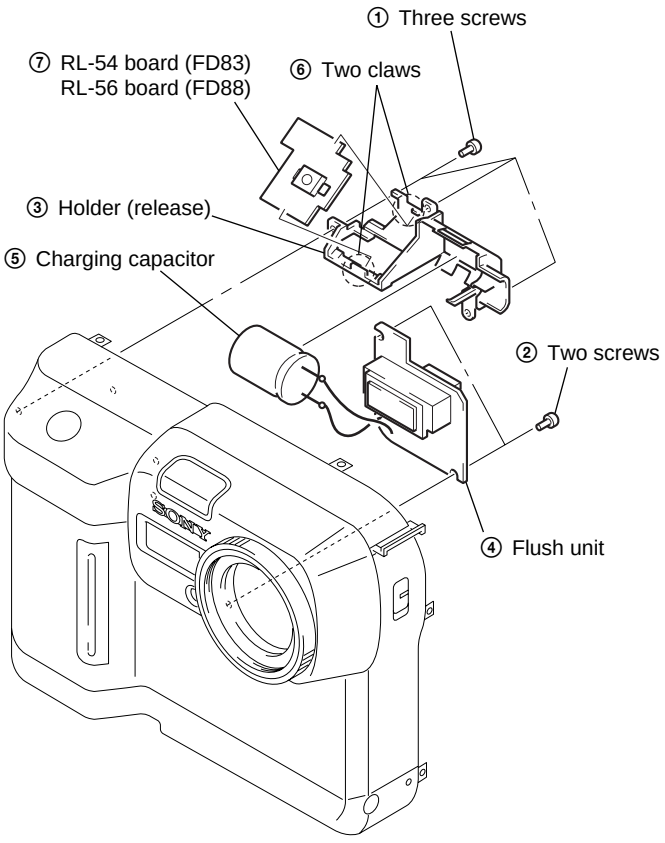


(Note) Flexible board of video lens is not supplied. Please be careful not to break the flexible board when you change the motor unit.

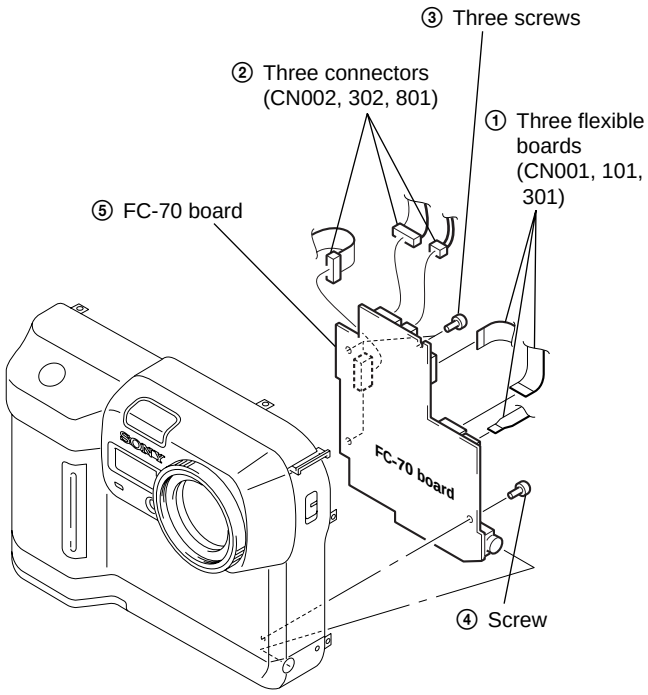
2-6. BATTERY HOLDER, FU-135/137 BOARD



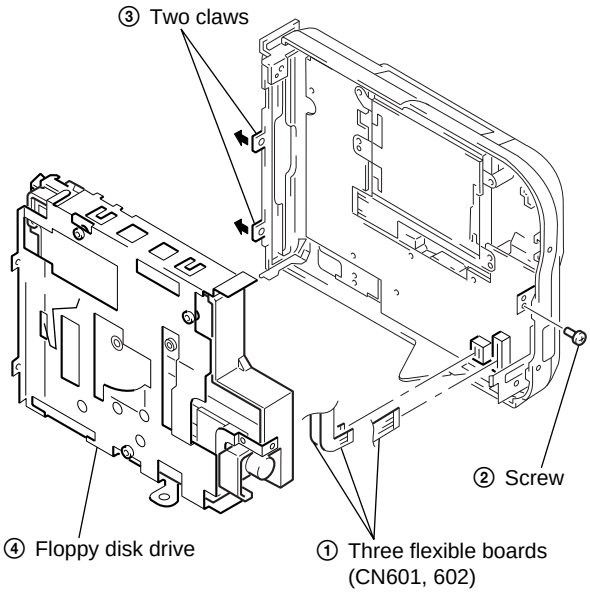
2-7. FLUSH UNIT, RL-54/56 BOARD



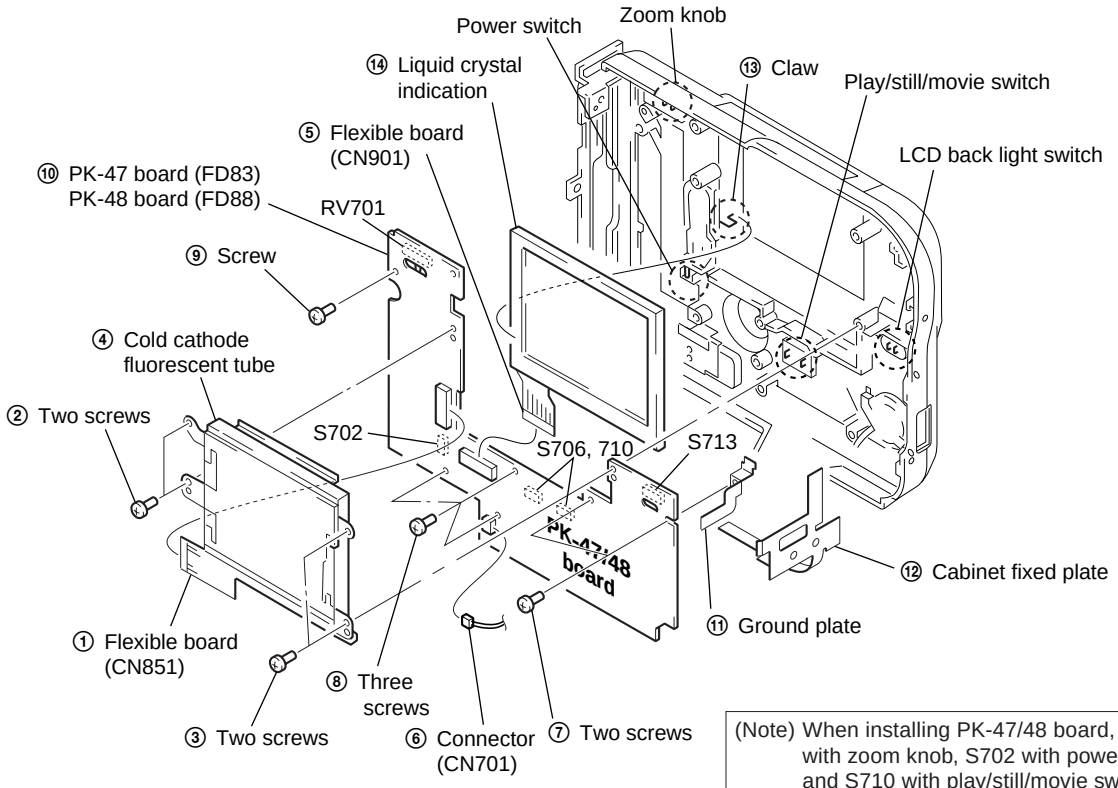
2-8. FC-70 BOARD



2-9. FLOPPY DISK DRIVE

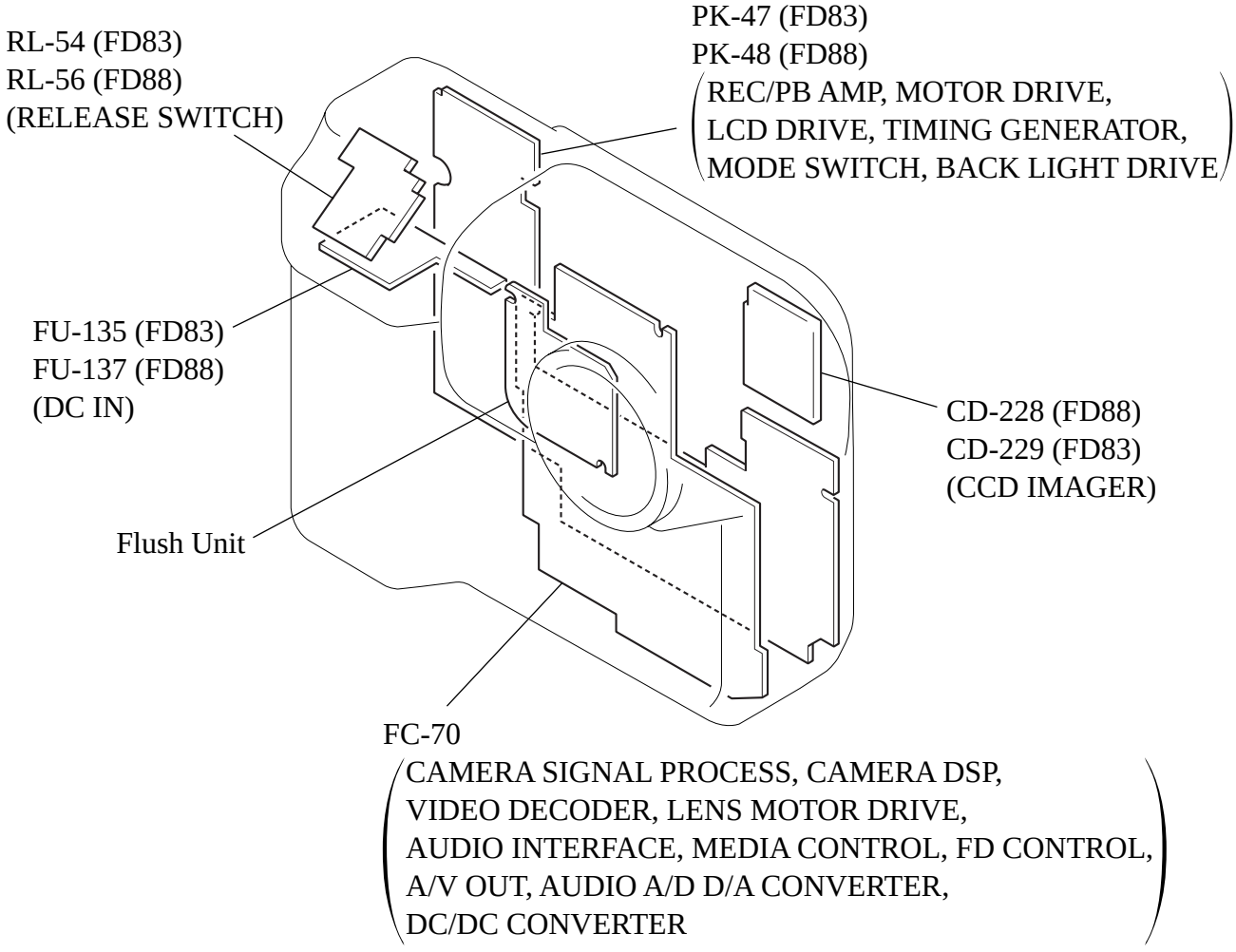


2-10. PK-47/48 BOARD, LIQUID CRYSTAL INDICATION



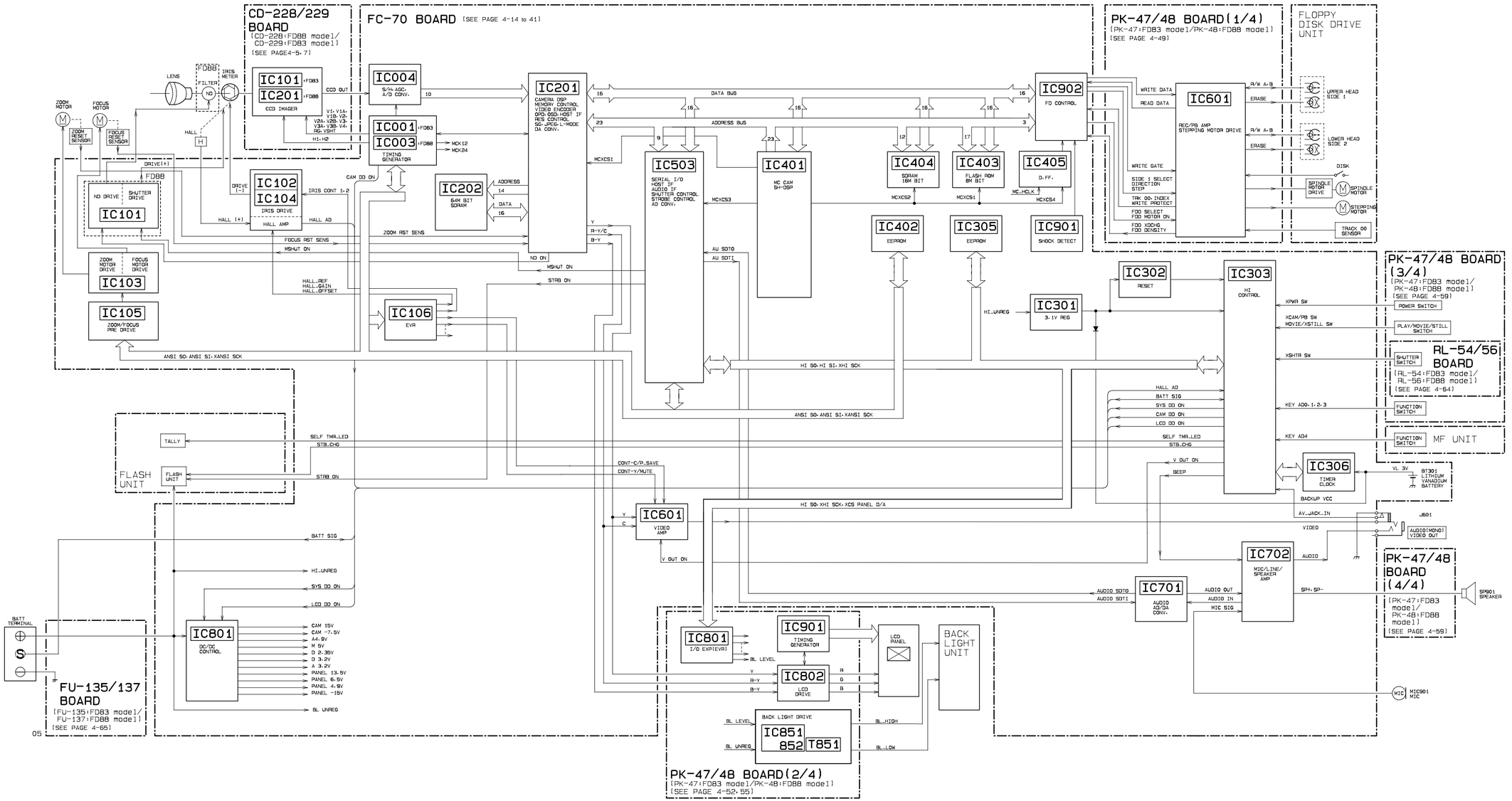
(Note) When installing PK-47/48 board, connect RV701 with zoom knob, S702 with power switch, S706 and S710 with play/still/movie switch and S713 with LCD back light switch.

2-11. CIRCUIT BOARDS LOCATION

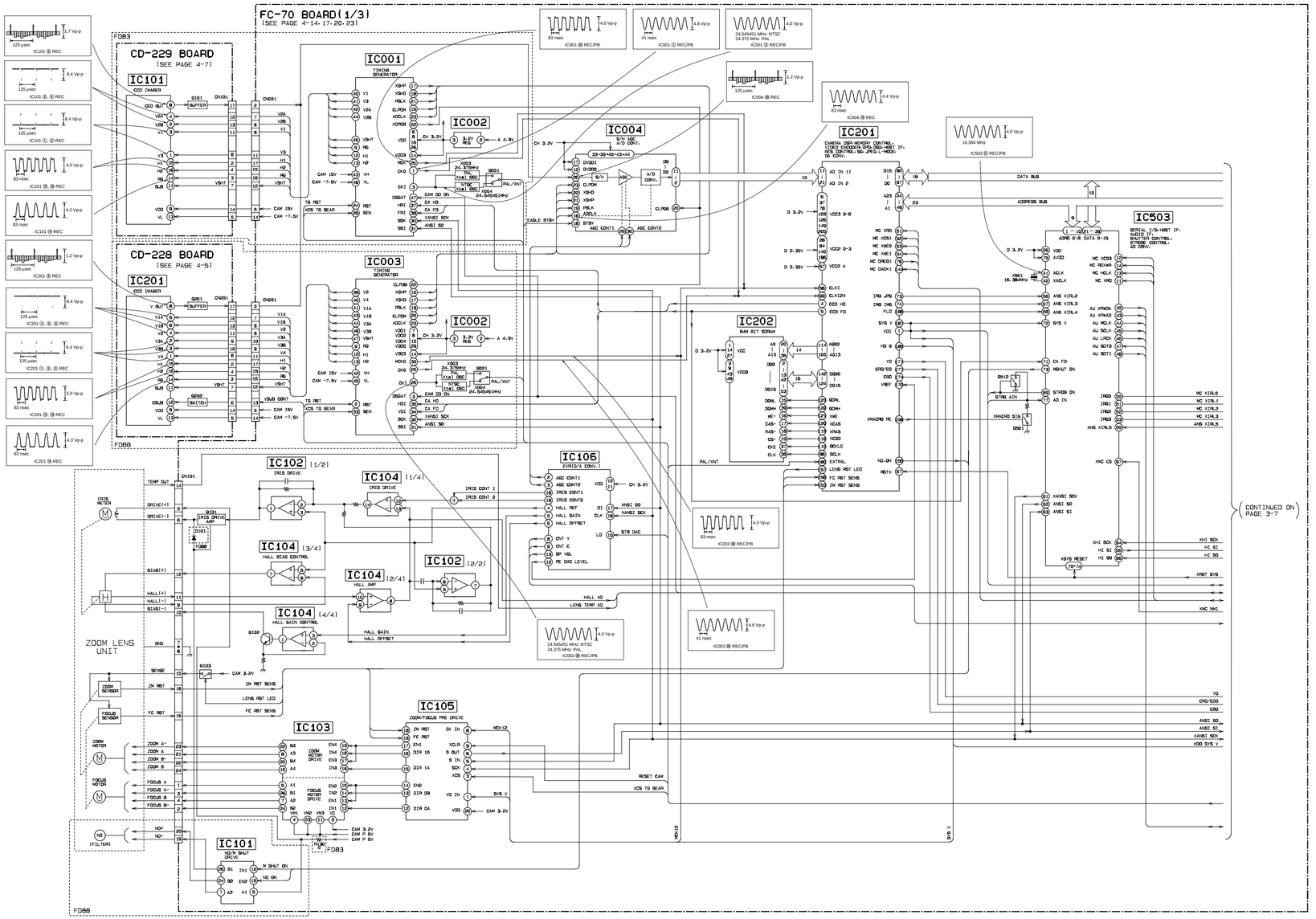

RL-54 (FD83)
RL-56 (FD88)
(RELEASE SWITCH)
PK-47 (FD83)
PK-48 (FD88)
(REC/PB AMP, MOTOR DRIVE, LCD DRIVE, TIMING GENERATOR, MODE SWITCH, BACK LIGHT DRIVE)
FU-135 (FD83)
FU-137 (FD88)
(DC IN)
CD-228 (FD88)
CD-229 (FD83)
(CCD IMAGER)
Flush Unit
FC-70
(CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL, FD CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER)

SECTION 3
BLOCK DIAGRAMS

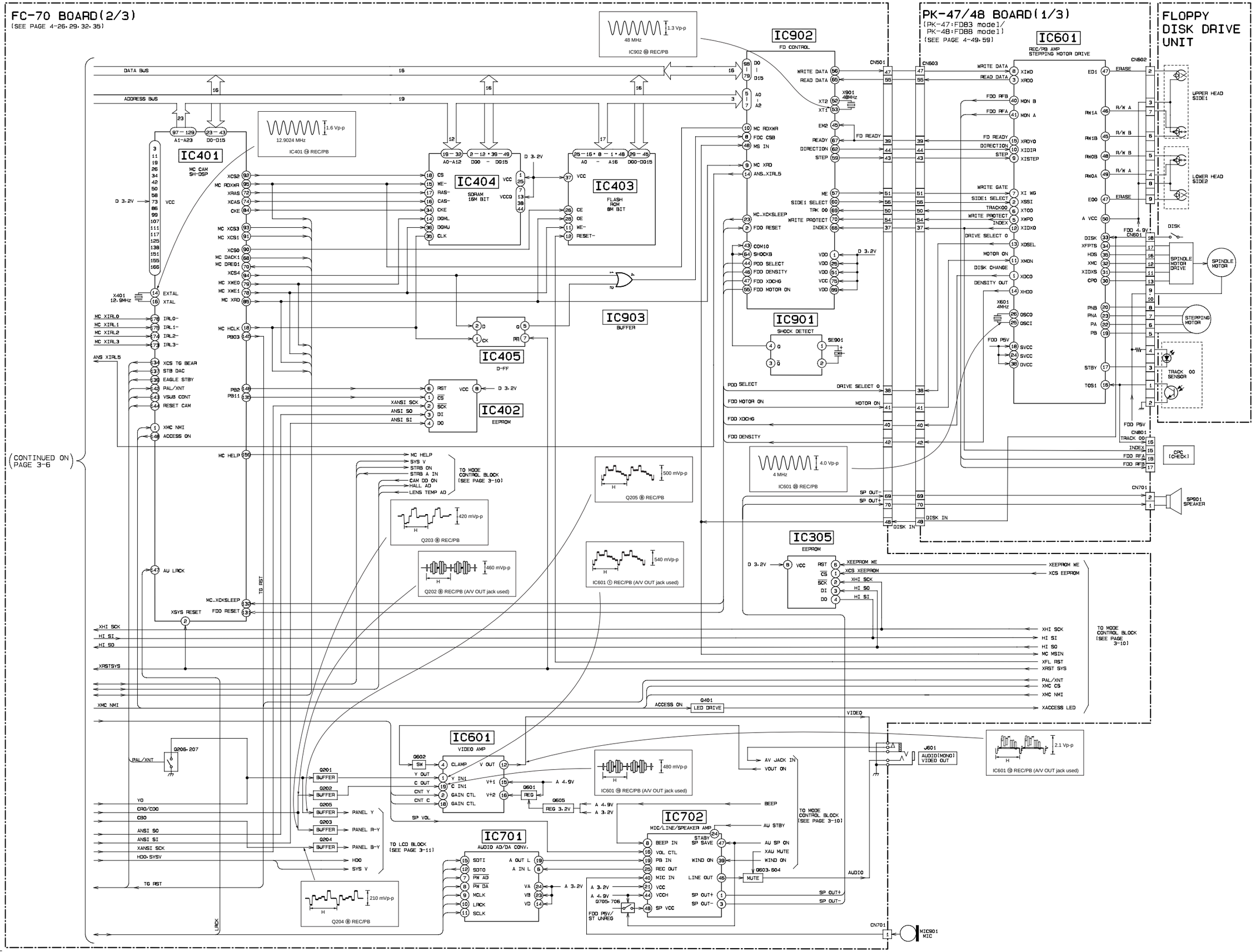
3-1. OVERALL BLOCK DIAGRAM



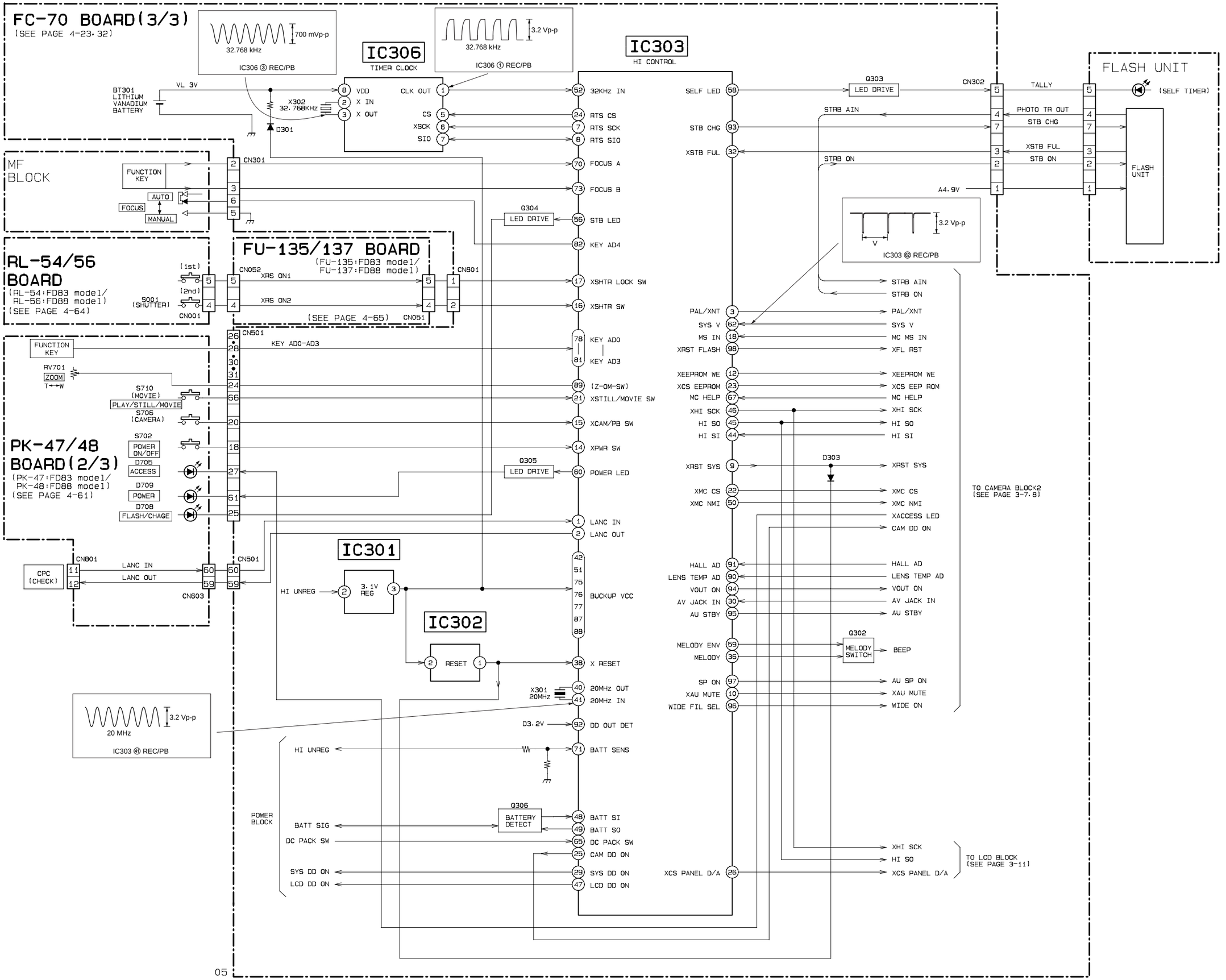
3-2. CAMERA BLOCK DIAGRAM 1

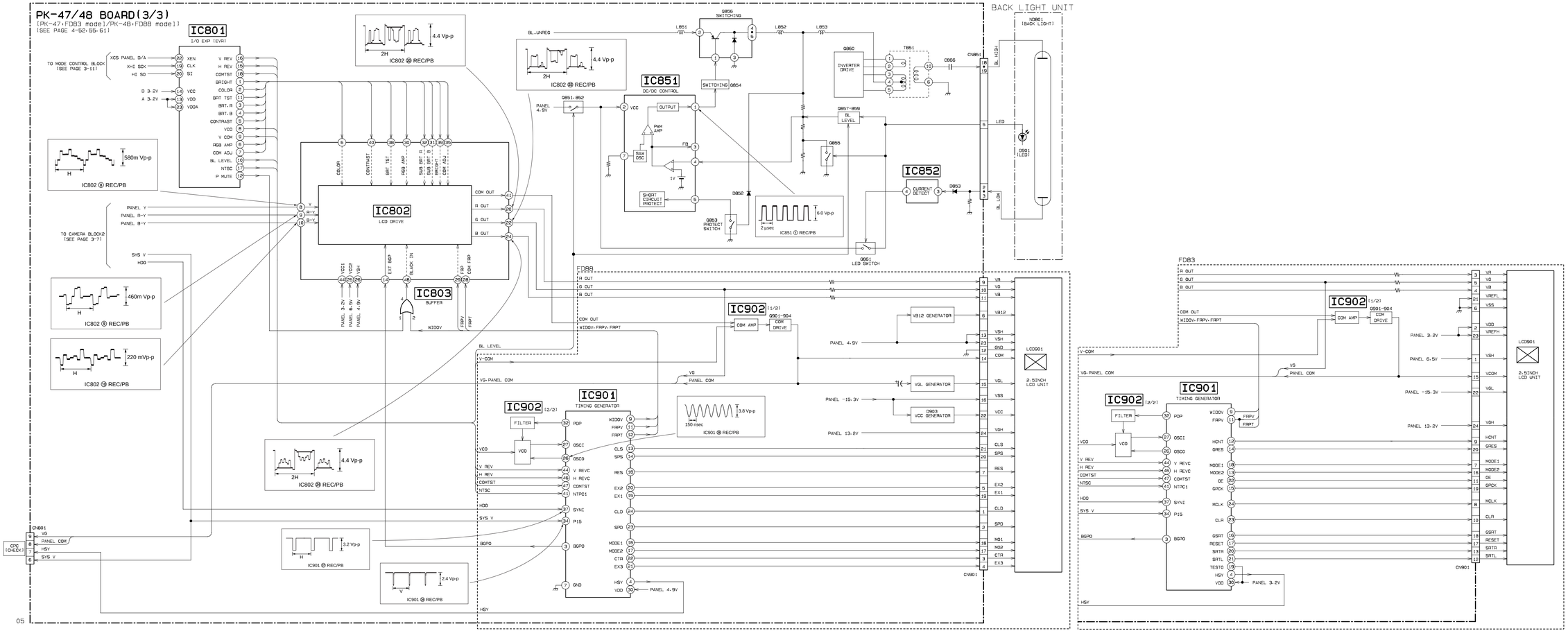


3-3. CAMERA BLOCK DIAGRAM 2

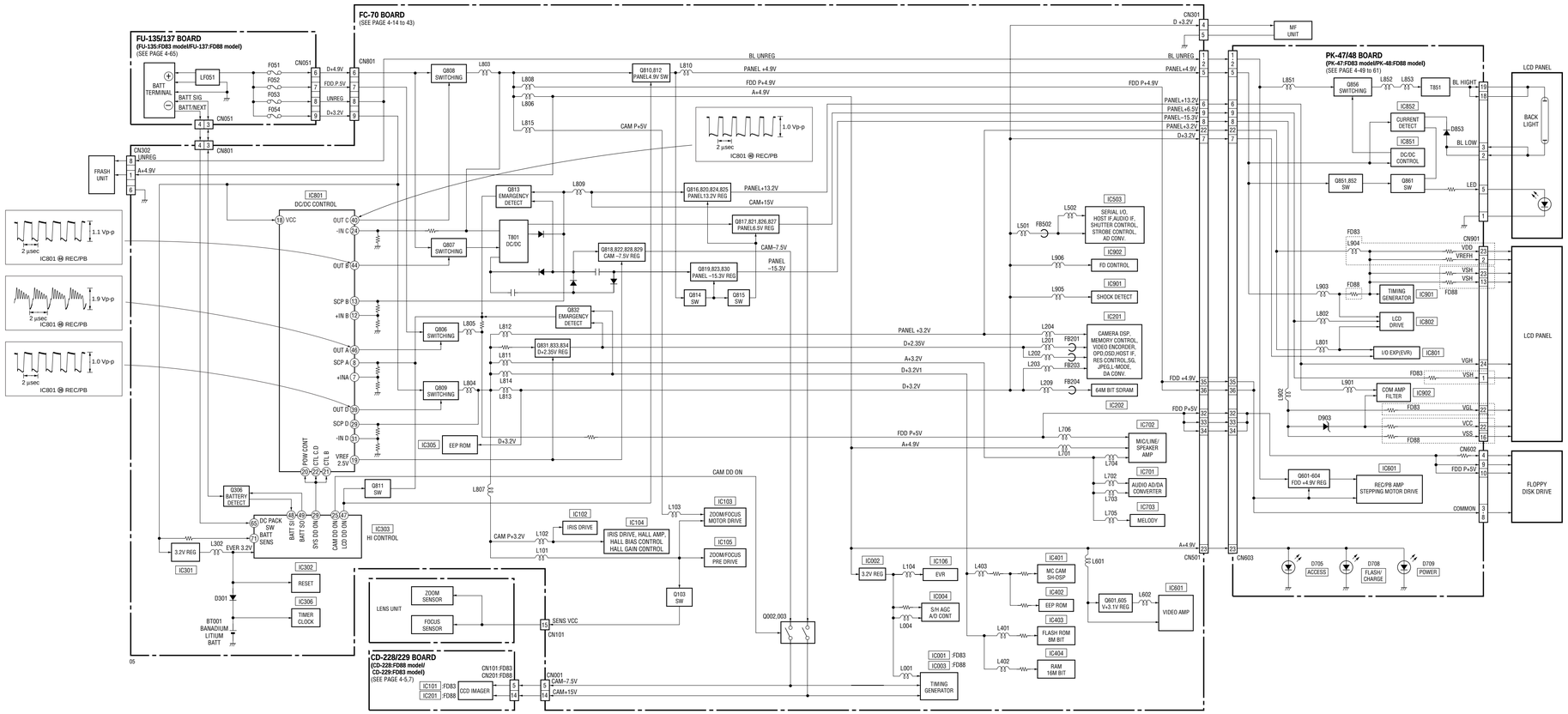


3-4. MODE CONTROL BLOCK DIAGRAM



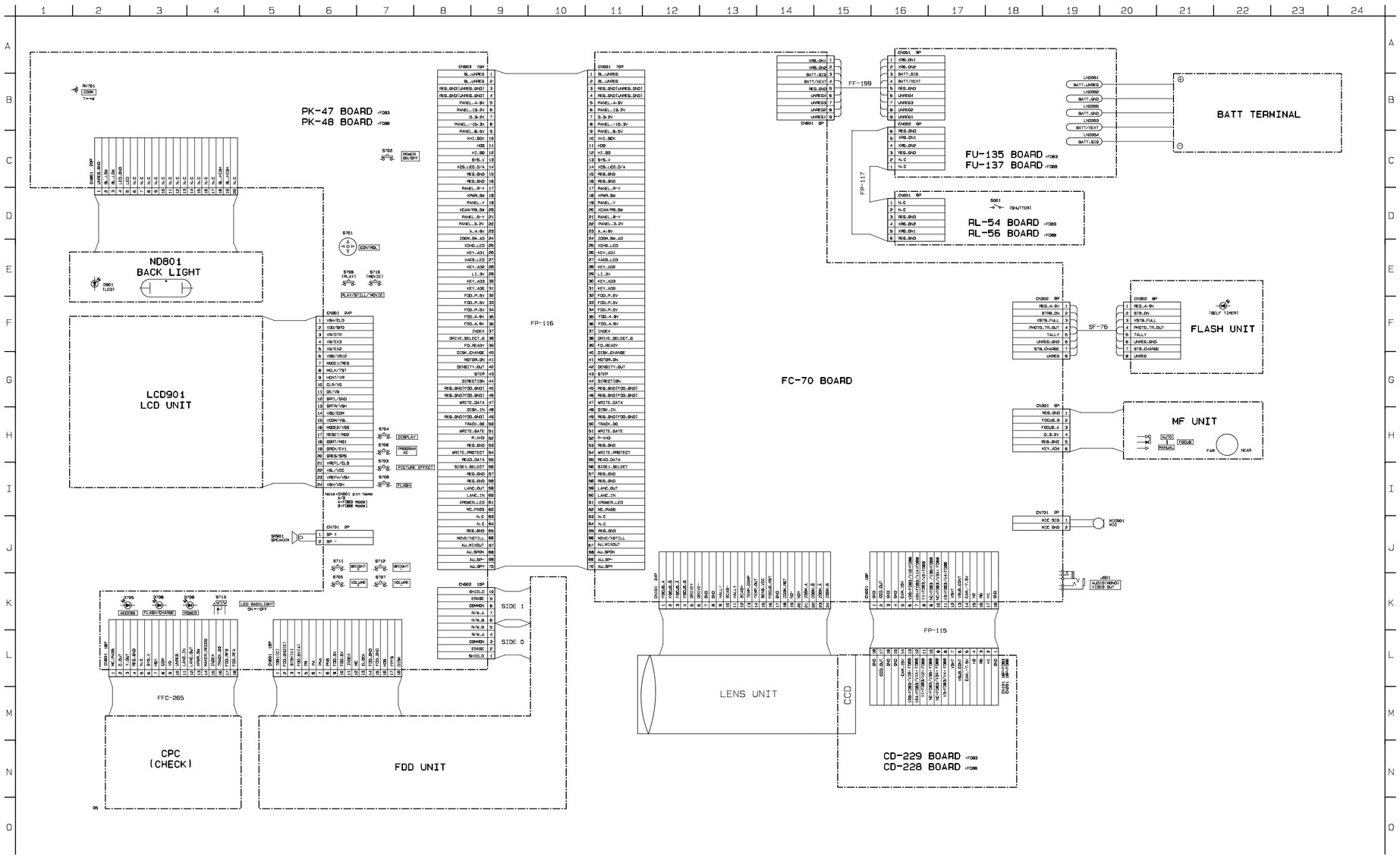

PK-47/48 BOARD(3/3)
(PK-47:FD83 model/PK-48:FD88 model)
(SEE PAGE 4-52,55,61)
IC801
I/O EXP (EVR)
IC802
LCD DRIVE
IC803
BUFFER
IC851
DC/DC CONTROL
IC852
CURRENT DETECT
IC902 (1/2)
Q901-904
COM DRIVE
IC901
TIMING GENERATOR
IC902 (2/2)
BACK LIGHT UNIT
LCD901
2.5INCH LCD UNIT
TO MODE CONTROL BLOCK (SEE PAGE 3-11)
TO CAMERA BLOCK2 (SEE PAGE 3-7)
CPC (CHECK)
580m Vp-p
460m Vp-p
220 mVp-p
4.4 Vp-p
3.2 Vp-p
2.4 Vp-p
3.8 Vp-p
6.0 Vp-p
FDB8
FDB3
3-11
3-12
3-13
3-14

3-6. POWER BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM

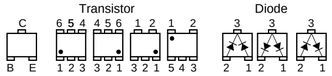


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS (In addition to this, the necessary note is printed in each block)

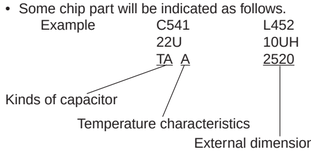
(For printed wiring boards)

- ▒▒▒: Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



(For schematic diagrams)

- All capacitors are in µF unless otherwise noted. pF : µµF. 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. kΩ=1000 Ω, MΩ=1000 kΩ.
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.



- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line *
- : B– Line *
- : IN/OUT direction of (+,–) B LINE. *
- : adjustment for repair. *
- Circled numbers refer to waveforms. *

* Indicated by the color red.

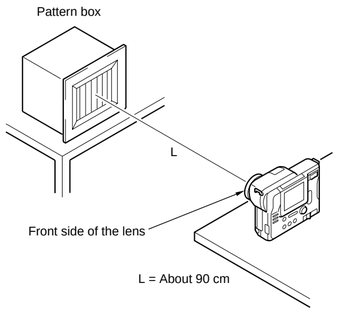
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note : Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtained.

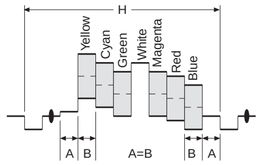


Fig. a (Video output terminal output waveform)

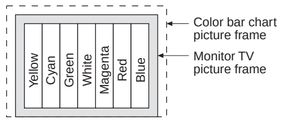


Fig.b (Picture on monitor TV)

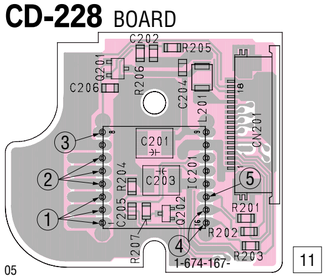
When indicating parts by reference number, please include the board name.

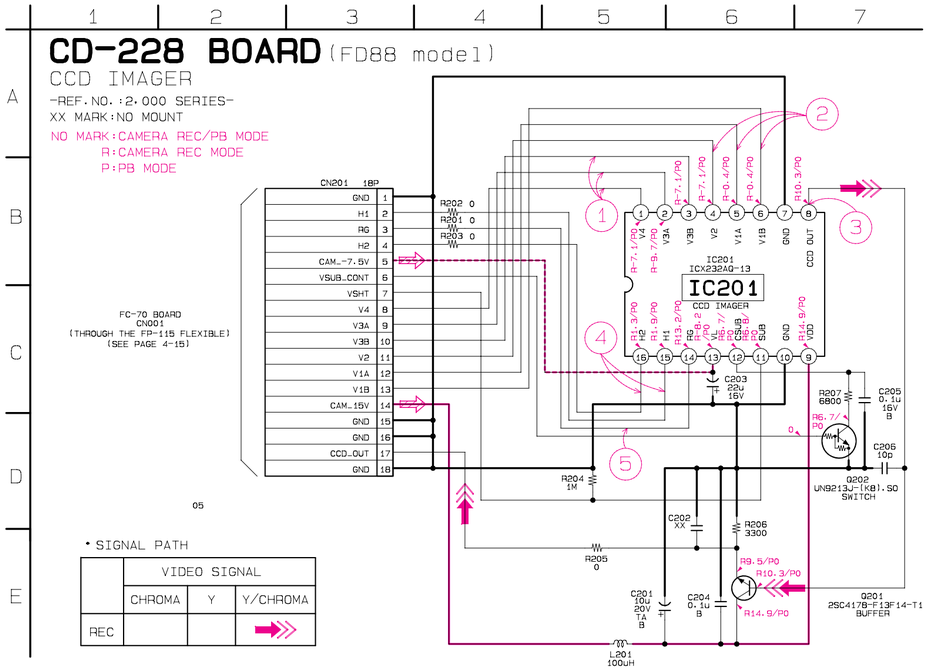
CD-228 (CCD IMAGER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

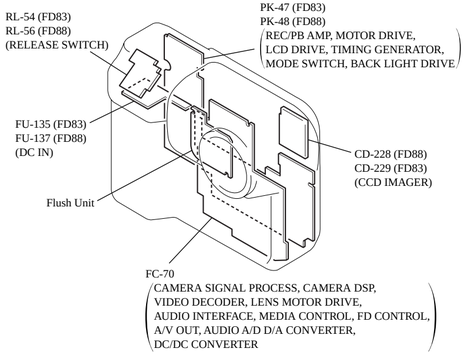
– Ref. No.: CD-228 board; 2,000 series –

– MVC-FD88 –

- **For Printed Wiring Board.**
- CD-228 board is 4-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



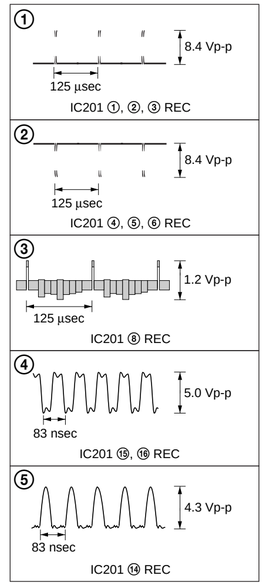



RL-54 (FD83)
RL-56 (FD88)
(RELEASE SWITCH)
PK-47 (FD83)
PK-48 (FD88)
(REC/PB AMP, MOTOR DRIVE, LCD DRIVE, TIMING GENERATOR, MODE SWITCH, BACK LIGHT DRIVE)
FU-135 (FD83)
FU-137 (FD88)
(DC IN)
CD-228 (FD88)
CD-229 (FD83)
(CCD IMAGER)
Flush Unit
FC-70
(CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL, FD CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER)

Precautions for Replacement of CCD Imager

- The CD-228 board mounted as a repair part is not equipped with a CCD imager. When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

CD-228 BOARD



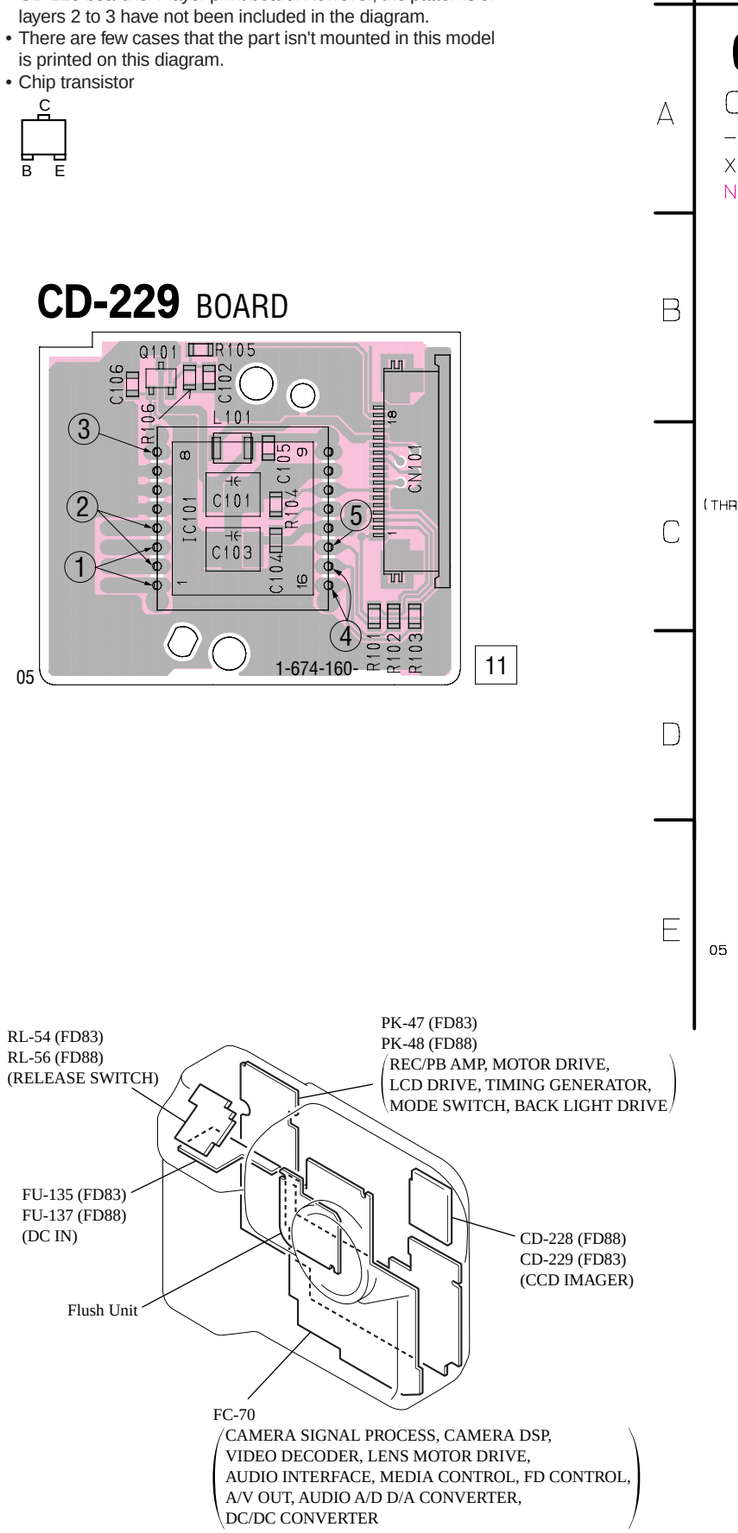
CD-229 (CCD IMAGER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

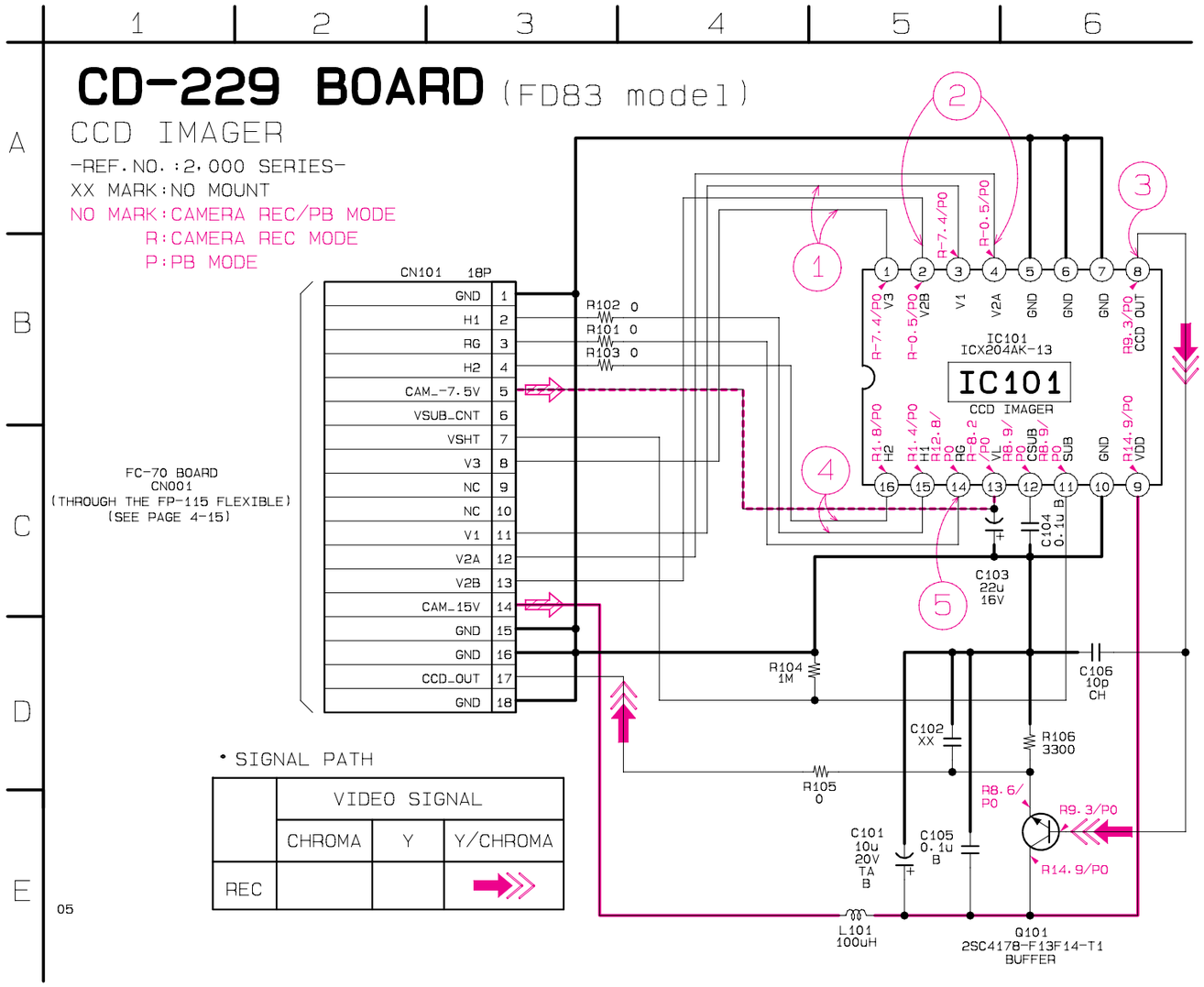
– Ref. No.: CD-229 board; 2,000 series –

– MVC-FD83 –

- **For Printed Wiring Board.**
- CD-229 board is 4-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

CD-229 BOARD

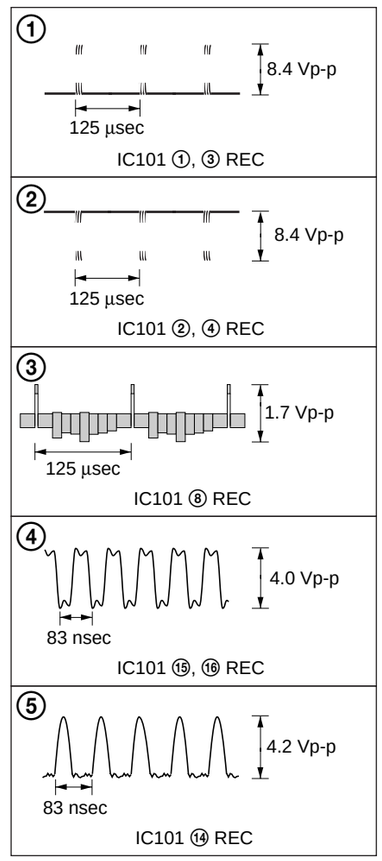

RL-54 (FD83)
RL-56 (FD88)
(RELEASE SWITCH)
PK-47 (FD83)
PK-48 (FD88)
(REC/PB AMP, MOTOR DRIVE, LCD DRIVE, TIMING GENERATOR, MODE SWITCH, BACK LIGHT DRIVE)
FU-135 (FD83)
FU-137 (FD88)
(DC IN)
CD-228 (FD88)
CD-229 (FD83)
(CCD IMAGER)
Flush Unit
FC-70
(CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL, FD CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER)



• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡

CD-229 BOARD



Precautions for Replacement of CCD Imager

- The CD-229 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

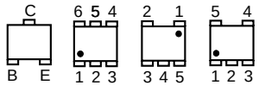
FC-70 (CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL, FD CONTROL, MODE CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER) PRINTED WIRING BOARD

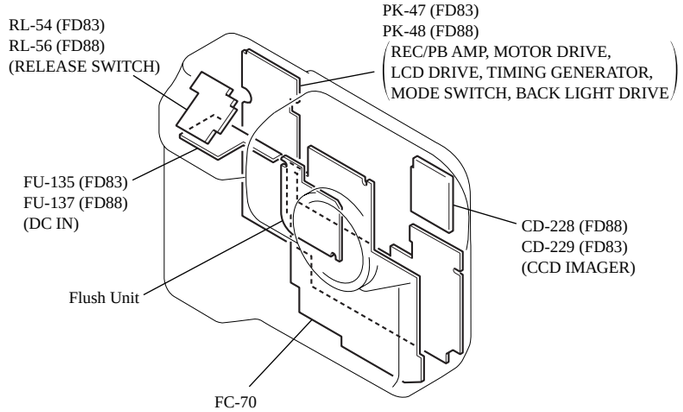
– Ref. No.: FC-70 board; 1,000 series –

FC-70 BOARD (SIDE A)

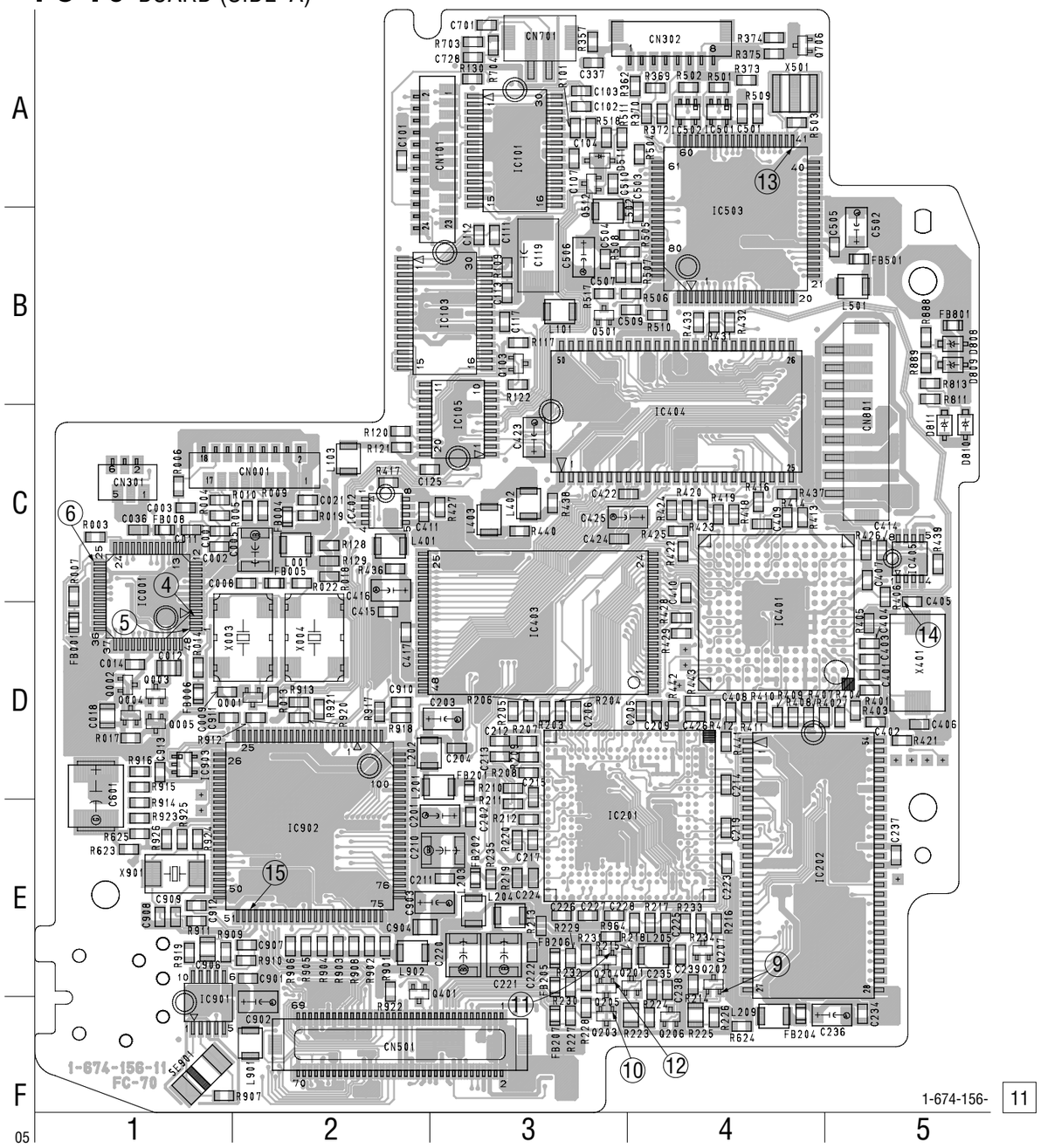
C001	C-1	C909	E-1	R017	D-1	R508	B-4
C002	C-1	C913	D-1	R019	C-2	R509	A-4
C003	C-1			R022	C-2	R510	B-4
C005	C-2	CN001	C-2	R117	B-3	R511	A-3
C008	C-2	CN101	A-3	R120	C-2	R517	B-3
C009	D-1	CN301	C-1	R121	C-2	R518	A-3
C011	C-1	CN302	A-4	R122	B-3	R623	E-1
C012	D-1	CN501	F-2	R129	C-2	R624	F-4
C014	D-1	CN701	A-3	R130	A-3	R625	E-1
C018	D-1	CN801	C-5	R203	D-3	R703	A-3
C021	C-2			R204	D-3	R704	A-3
C036	C-1	D808	B-5	R205	D-3	R811	B-5
C101	A-2	D809	B-5	R206	D-3	R813	B-5
C102	A-3			R207	D-3	R888	B-5
C103	A-3	FB001	D-1	R208	D-3	R889	B-5
C104	A-3	FB004	C-2	R210	D-3	R901	E-2
C107	A-3	FB005	C-2	R211	E-3	R902	E-2
C111	B-3	FB006	D-1	R212	E-3	R903	E-2
C112	B-3	FB008	C-1	R213	E-3	R904	E-2
C113	B-3	FB201	D-3	R214	E-4	R905	E-2
C117	B-3	FB202	E-3	R215	E-3	R906	E-2
C119	B-3	FB204	F-4	R216	E-4	R908	E-2
C125	C-2	FB205	E-3	R217	E-4	R909	E-1
C201	E-3	FB206	E-3	R218	E-4	R910	E-2
C202	E-3	FB207	F-3	R219	E-3	R911	E-1
C203	D-3	FB501	B-5	R220	E-3	R912	D-2
C204	D-3	FB801	B-5	R223	F-4	R913	D-2
C205	D-4			R224	F-4	R914	E-1
C206	D-3	IC001	C-1	R225	F-4	R915	D-1
C209	D-4	IC101	A-3	R226	F-4	R916	D-1
C210	E-3	IC103	B-3	R227	F-3	R917	D-2
C211	E-3	IC105	C-3	R228	F-3	R918	D-2
C212	D-3	IC201	E-4	R229	E-3	R919	E-1
C213	D-3	IC202	E-4	R230	E-3	R922	E-2
C214	D-4	IC401	D-4	R231	E-3	R923	E-1
C215	D-3	IC402	C-2	R232	E-3	R964	E-3
C217	E-3	IC403	D-3	R233	E-4		
C219	E-4	IC404	C-4	R234	E-4	SE901	F-1
C220	E-3	IC405	C-5	R235	E-3		
C221	E-3	IC503	B-4	R357	A-3	T801	C-2
C222	E-3	IC901	F-1	R362	A-4		
C223	E-4	IC902	E-2	R369	A-4	X003	D-2
C224	E-3	IC903	D-1	R370	A-4	X004	D-2
C225	E-4			R372	A-4	X301	E-3
C226	E-3	L001	C-2	R373	A-4	X302	F-2
C227	E-3	L101	B-3	R374	A-4	X401	D-5
C228	E-3	L103	C-2	R375	A-4	X501	A-4
C234	F-5	L201	D-3	R401	D-5	X901	E-1
C235	E-4	L202	D-2	R404	D-5		
C236	F-5	L203	E-3	R405	D-5		
C237	E-5	L204	E-3	R406	C-5		
C238	E-4	L205	E-4	R407	D-4		
C239	E-4	L209	F-4	R408	D-4		
C401	D-5	L401	C-2	R409	D-4		
C402	D-5	L402	C-3	R410	D-4		
C403	D-5	L403	C-3	R411	D-4		
C404	D-5	L501	B-5	R413	C-4		
C405	C-5	L502	B-3	R414	C-4		
C406	D-5	L901	F-2	R416	C-4		
C407	C-5	L902	E-2	R417	C-2		
C408	D-4			R418	C-4		
C409	C-4	Q001	D-2	R419	C-4		
C410	C-4	Q002	D-1	R420	C-4		
C411	C-2	Q003	D-1	R421	D-5		
C414	C-5	Q004	D-1	R422	C-4		
C415	D-2	Q005	D-1	R423	C-4		
C416	C-2	Q103	B-3	R424	C-4		
C417	D-2	Q201	E-4	R425	C-4		
C422	C-3	Q202	E-4	R426	C-5		
C423	C-3	Q203	F-3	R427	C-3		
C424	C-3	Q204	E-3	R428	D-4		
C425	C-3	Q205	E-3	R429	D-4		
C426	D-4	Q206	F-4	R431	B-4		
C501	A-4	Q207	E-4	R432	B-4		
C502	B-5	Q401	E-2	R433	B-4		
C503	B-4	Q501	B-3	R436	C-2		
C504	B-3	Q512	A-3	R437	C-4		
C505	B-5	Q706	A-4	R438	C-3		
C506	B-3			R440	C-3		
C510	A-3	R003	C-1	R441	D-4		
C601	D-1	R004	C-1	R442	D-4		
C901	E-2	R005	C-1	R443	D-4		
C902	F-2	R006	C-1	R501	A-4		
C903	E-3	R007	C-1	R502	A-4		
C904	E-2	R009	C-2	R503	A-4		
C906	E-1	R010	C-2	R504	A-4		
C907	E-2	R013	D-2	R505	B-4		
C908	E-1	R014	D-1	R506	B-4		

- **For Printed Wiring Board.**
- FC-70 board is 6-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor




RL-54 (FD83)
RL-56 (FD88)
(RELEASE SWITCH)
PK-47 (FD83)
PK-48 (FD88)
(REC/PB AMP, MOTOR DRIVE, LCD DRIVE, TIMING GENERATOR, MODE SWITCH, BACK LIGHT DRIVE)
FU-135 (FD83)
FU-137 (FD88)
(DC IN)
CD-228 (FD88)
CD-229 (FD83)
(CCD IMAGER)
Flush Unit
FC-70
(CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL, FD CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER)

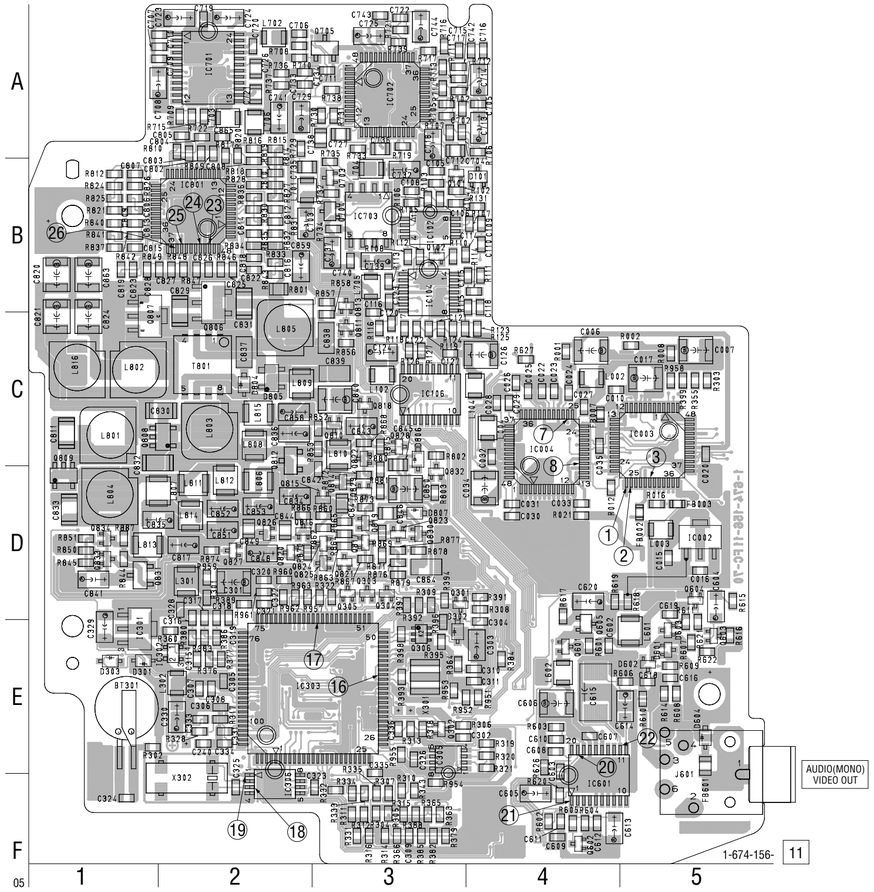
FC-70 BOARD (SIDE A)



CAMERA SIGNAL PROCESS, CAMERA DSP, VIDEO DECODER, LENS MOTOR DRIVE, AUDIO INTERFACE, MEDIA CONTROL FD CONTROL, MODE CONTROL, A/V OUT, AUDIO A/D D/A CONVERTER, DC/DC CONVERTER

FC-70

FC-70 BOARD (SIDE B)



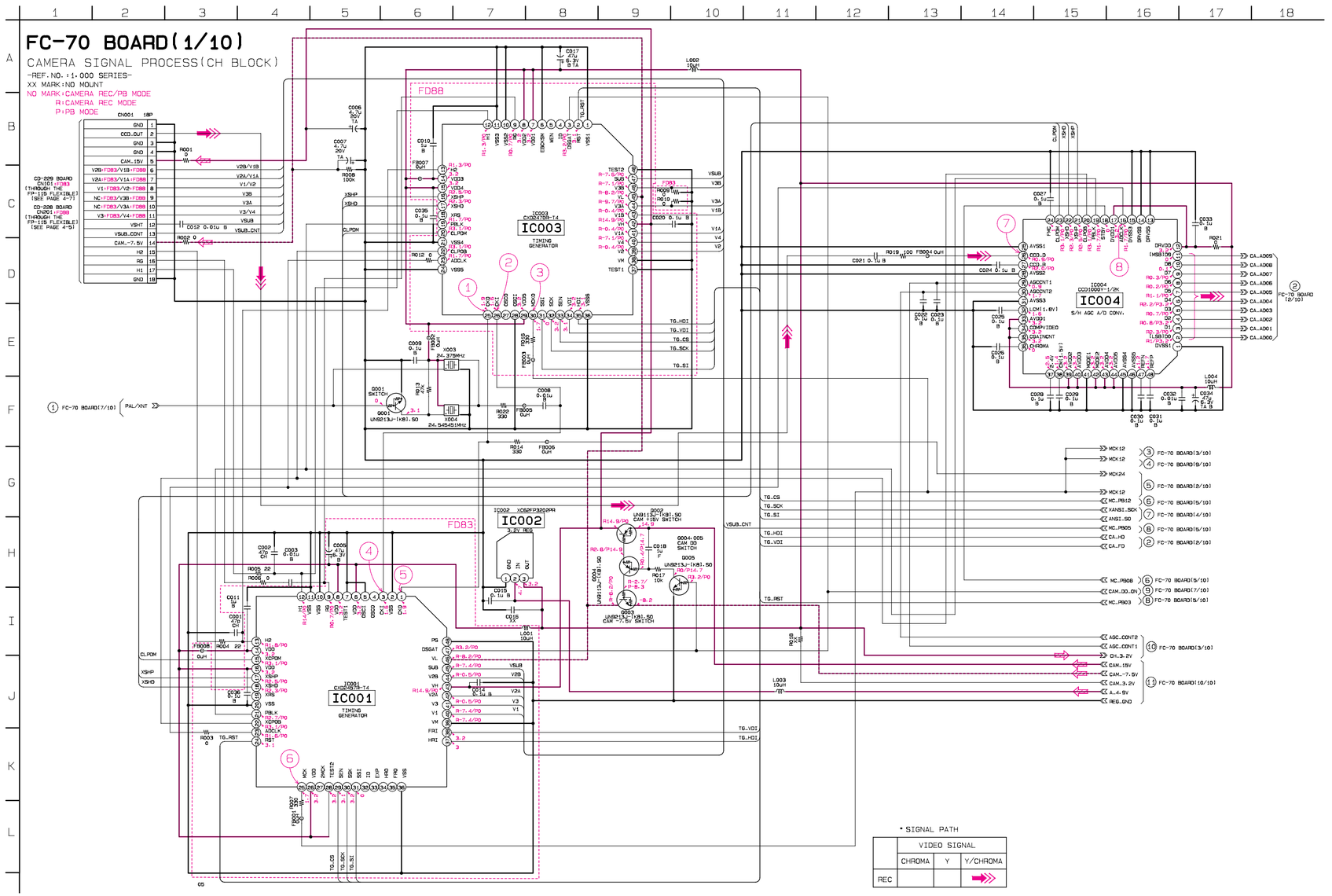
FC-70 BOARD (SIDE B)

BT301	E-1	C734	A-3	IC801	B-2	R113	B-3	R712	A-4
		C735	B-3			R114	B-4	R713	A-3
C006	C-4	C736	A-3	J601	E-5	R115	B-4	R716	A-3
C007	C-5	C741	A-2			R116	C-3	R717	A-3
C010	C-5	C742	A-4	L002	C-4	R118	C-3	R721	A-3
C015	D-5	C743	A-3	L003	D-5	R119	C-3	R722	A-2
C017	C-5	C744	A-3	L004	C-4	R123	C-4	R729	A-2
C020	C-5	C802	A-2	L102	C-3	R124	C-3	R730	A-3
C022	C-4	C803	A-2	L104	C-4	R125	C-4	R733	A-3
C023	C-4	C804	A-2	L302	E-2	R126	C-3	R736	A-2
C024	C-4	C805	A-2	L601	E-5	R127	C-3	R739	A-3
C025	C-4	C806	B-1	L602	E-4	R131	B-4	R801	B-2
C026	C-4	C808	B-2	L701	B-3	R301	D-2	R802	C-3
C027	C-4	C809	B-1	L702	A-2	R302	E-2	R803	D-3
C028	C-4	C810	B-2	L703	A-2	R303	C-5	R809	A-2
C029	C-4	C811	C-1	L704	B-3	R304	F-3	R810	A-2
C030	D-4	C814	B-2	L706	A-2	R305	F-3	R812	B-1
C031	D-4	C815	B-1	L801	C-1	R306	E-4	R814	B-2
C032	C-4	C816	B-2	L802	C-1	R307	F-3	R815	A-2
C033	D-4	C817	D-2	L803	C-2	R308	D-4	R816	A-2
C034	D-3	C818	B-2	L804	D-1	R310	F-3	R817	A-2
C035	C-4	C819	B-1	L805	C-2	R311	F-3	R818	B-2
C105	B-3	C820	B-1	L806	D-2	R312	F-3	R819	B-2
C106	B-3	C821	C-1	L807	D-2	R313	E-3	R820	A-2
C108	B-3	C822	B-2	L808	C-2	R314	F-3	R821	B-1
C109	B-4	C823	B-1	L809	C-2	R315	F-3	R824	B-1
C110	B-4	C824	C-1	L810	C-3	R316	F-3	R825	B-1
C114	B-4	C825	B-2	L811	D-2	R317	E-2	R826	B-1
C115	B-4	C826	B-2	L812	D-2	R318	E-3	R827	B-2
C118	B-4	C827	B-2	L813	D-1	R319	E-4	R828	B-2
C120	C-3	C828	B-1	L814	D-2	R320	E-4	R830	B-2
C121	C-3	C829	B-2	L815	C-2	R321	E-4	R831	B-2
C123	B-3	C830	C-2	L816	C-1	R322	D-3	R832	B-2
C124	C-3	C831	B-2			R328	E-2	R833	B-2
C126	C-4	C832	C-2	Q101	B-4	R331	F-3	R834	B-2
C127	C-3	C833	D-1	Q102	B-3	R332	F-3	R835	B-2
C301	D-2	C834	D-2	Q302	E-3	R333	F-3	R836	B-2
C302	E-4	C835	D-2	Q303	D-3	R334	F-3	R837	B-1
C303	E-4	C836	C-2	Q304	D-3	R335	F-3	R840	B-1
C305	E-2	C837	C-2	Q305	D-3	R343	F-3	R841	B-1
C309	F-3	C838	C-3	Q306	E-3	R355	C-5	R842	B-1
C310	E-4	C839	C-3	Q601	E-4	R360	E-2	R843	B-2
C311	E-4	C840	C-3	Q602	F-4	R363	F-3	R844	D-1
C320	D-2	C841	D-1	Q603	E-5	R364	E-4	R845	D-1
C321	D-2	C842	D-3	Q604	D-5	R365	F-3	R846	B-2
C322	D-2	C843	C-3	Q605	E-4	R366	F-3	R847	B-2
C324	F-1	C844	D-2	Q705	A-3	R376	E-2	R848	B-1
C325	F-2	C845	C-3	Q806	B-2	R377	E-2	R849	B-2
C326	E-3	C846	D-3	Q807	C-2	R379	F-3	R850	D-1
C328	D-2	C847	D-3	Q808	C-2	R380	E-2	R851	D-1
C329	E-1	C848	D-2	Q809	D-1	R382	F-3	R852	C-3
C330	E-2	C849	D-2	Q810	C-3	R383	E-2	R853	C-3
C602	E-4	C850	D-3	Q811	C-3	R384	E-4	R856	C-3
C603	E-4	C851	D-2	Q812	C-2	R385	F-3	R857	B-3
C604	D-5	C852	D-2	Q813	B-3	R386	E-2	R858	C-3
C605	F-4	C853	D-2	Q814	D-3	R388	F-3	R860	D-3
C606	E-4	C858	C-2	Q815	D-3	R389	D-2	R862	D-3
C607	E-4	C863	B-1	Q816	D-3	R391	D-4	R863	D-3
C608	E-4	C864	D-3	Q817	D-3	R393	E-3	R864	D-3
C609	F-4	C865	A-2	Q818	C-3	R394	D-3	R865	D-3
C610	E-4			Q819	D-3	R395	E-3	R866	D-3
C611	F-4	D101	B-4	Q820	D-2	R396	E-3	R867	D-3
C613	F-5	D301	E-1	Q821	D-3	R397	D-3	R868	C-3
C614	E-5	D302	E-4	Q822	C-3	R398	E-3	R869	D-3
C615	E-4	D303	E-1	Q823	D-3	R399	C-5	R870	D-3
C620	D-4	D601	E-5	Q824	D-3	R601	E-4	R871	D-3
C702	A-3	D602	E-5	Q825	D-3	R602	F-4	R872	D-3
C703	B-3	D603	E-5	Q826	D-2	R603	E-4	R873	D-3
C704	A-4	D604	E-5	Q827	D-2	R604	F-4	R874	D-2
C705	A-4	D804	C-2	Q828	C-3	R605	F-4	R875	C-3
C706	A-2	D805	C-2	Q829	D-3	R606	E-5	R876	D-3
C708	A-2	D806	C-3	Q830	D-3	R607	E-5	R877	D-3
C709	A-2	D807	D-3	Q831	D-1	R608	E-5	R878	D-3
C710	A-2			Q832	D-3	R609	E-5	R879	D-3
C711	A-3	FB002	D-5	Q833	D-1	R610	E-5	R880	D-3
C712	A-3	FB003	D-5	Q834	D-1	R611	E-5	R881	D-3
C713	A-4	FB007	C-4			R614	E-5	R887	D-1
C714	A-4	FB601	E-5	R001	C-4	R615	D-5	R951	E-4
C715	A-4			R002	C-5	R616	E-5	R952	E-4
C716	A-4	IC002	D-5	R008	C-5	R617	D-4	R953	E-3
C718	A-3	IC003	C-5	R012	D-5	R618	D-5	R954	F-3
C719	A-2	IC004	C-4	R016	D-5	R619	D-5	R955	E-3
C720	A-2	IC102	B-3	R021	D-4	R621	E-5	R957	D-3
C721	A-2	IC104	B-3	R102	B-4	R622	E-5	R958	C-5
C722	A-3	IC106	C-3	R103	B-3	R626	E-4	R959	D-2
C723	A-2	IC301	E-1	R104	B-4	R627	C-4	R960	D-2
C724	A-2	IC302	E-2	R105	B-3	R702	A-4	R961	D-2
C725	A-3	IC303	E-3	R106	B-3	R705	A-3	R962	D-2
C726	A-2	IC305	E-3	R107	B-4	R706	A-4	R963	D-3
C727	A-3	IC306	F-2	R108	B-3	R707	A-3		
C729	A-2	IC601	F-4	R110	B-3	R709	A-2		
C732	B-3	IC701	A-2	R111	B-4	R710	A-2		
C733	A-3	IC702	A-3	R112	B-3	R711	A-4		

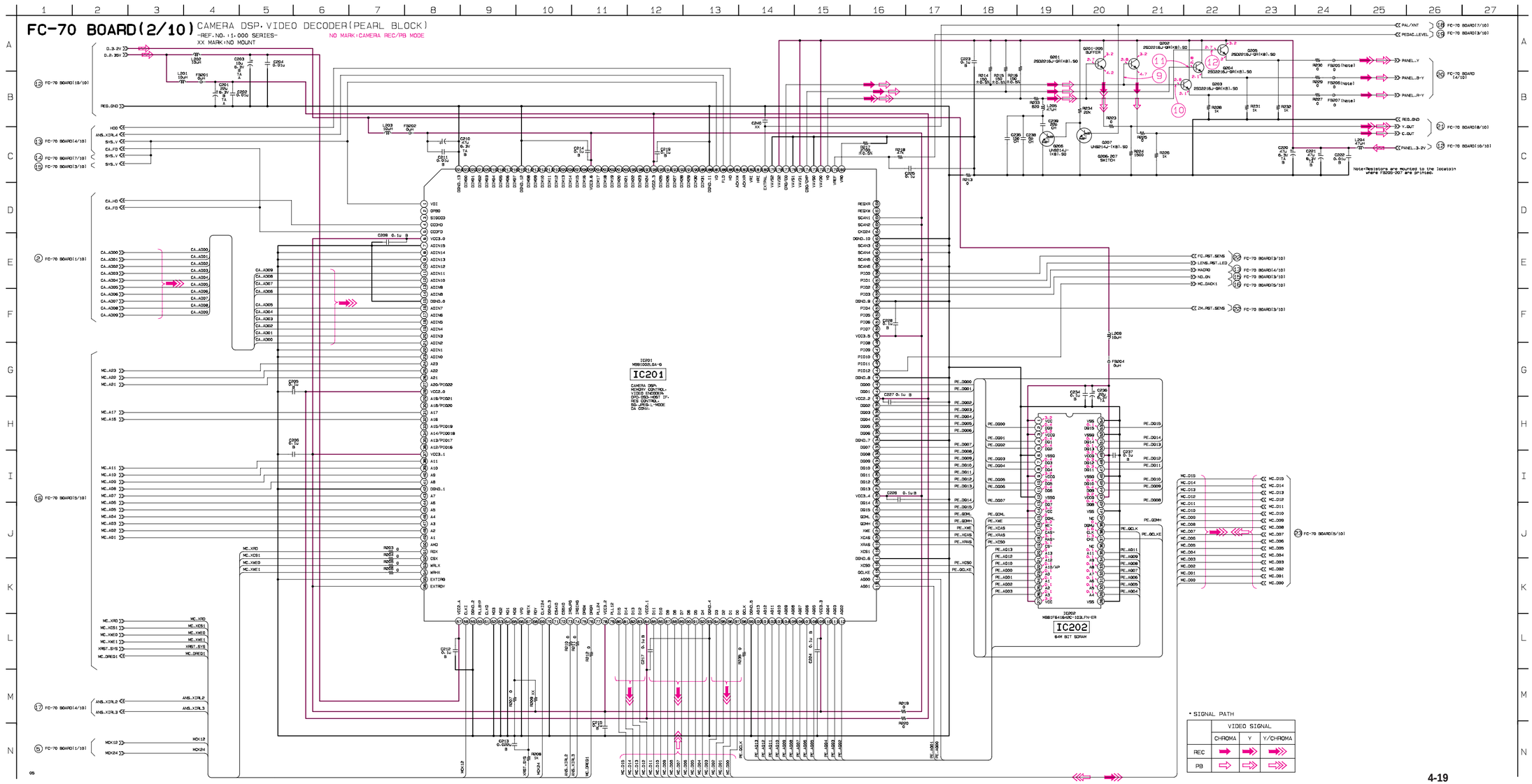
FC-70 BOARD (1/10)

①	4.8 Vp-p	41 nsec IC003 ㉕ REC/PB
②	4.0 Vp-p	24.545451 MHz: NTSC 24.375 MHz: PAL IC003 ㉖ REC/PB
③	4.0 Vp-p	83 nsec IC003 ㉚ REC/PB
④	4.0 Vp-p	24.545451 MHz: NTSC 24.375 MHz: PAL IC001 ③ REC/PB
⑤	4.8 Vp-p	41 nsec IC001 ① REC/PB
⑥	4.0 Vp-p	83 nsec IC001 ㉘ REC/PB
⑦	1.2 Vp-p	125 µsec IC004 ㉘ REC
⑧	4.4 Vp-p	83 nsec IC004 ⑯ REC

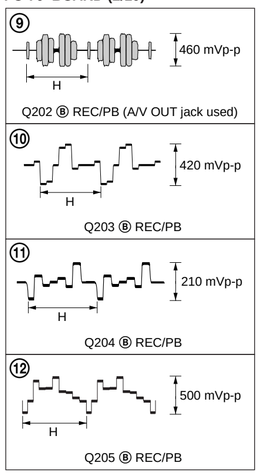
FC-70 (CAMERA SIGNAL PROCESS) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



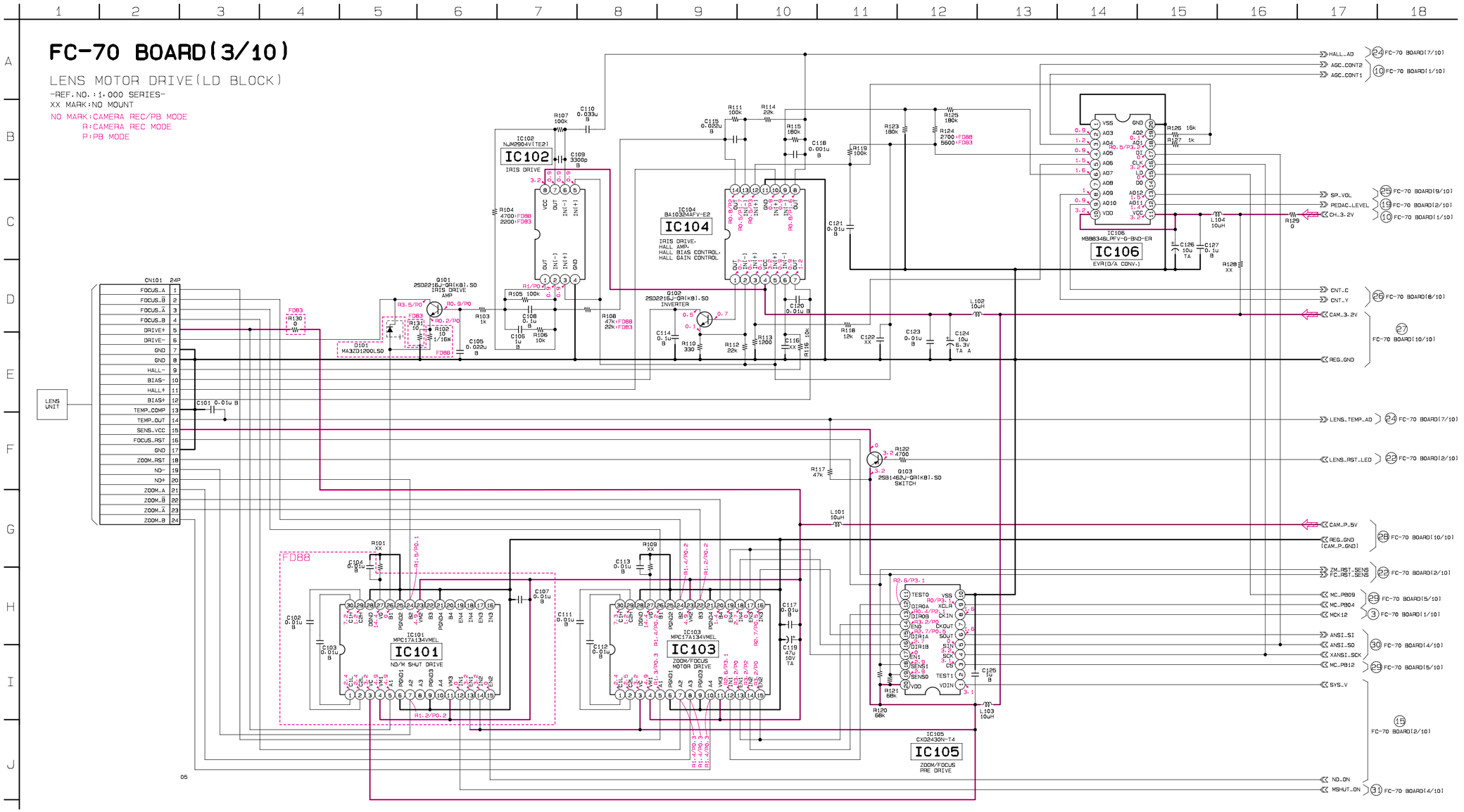
FC-70 (CAMERA DSP, VIDEO DECODER) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



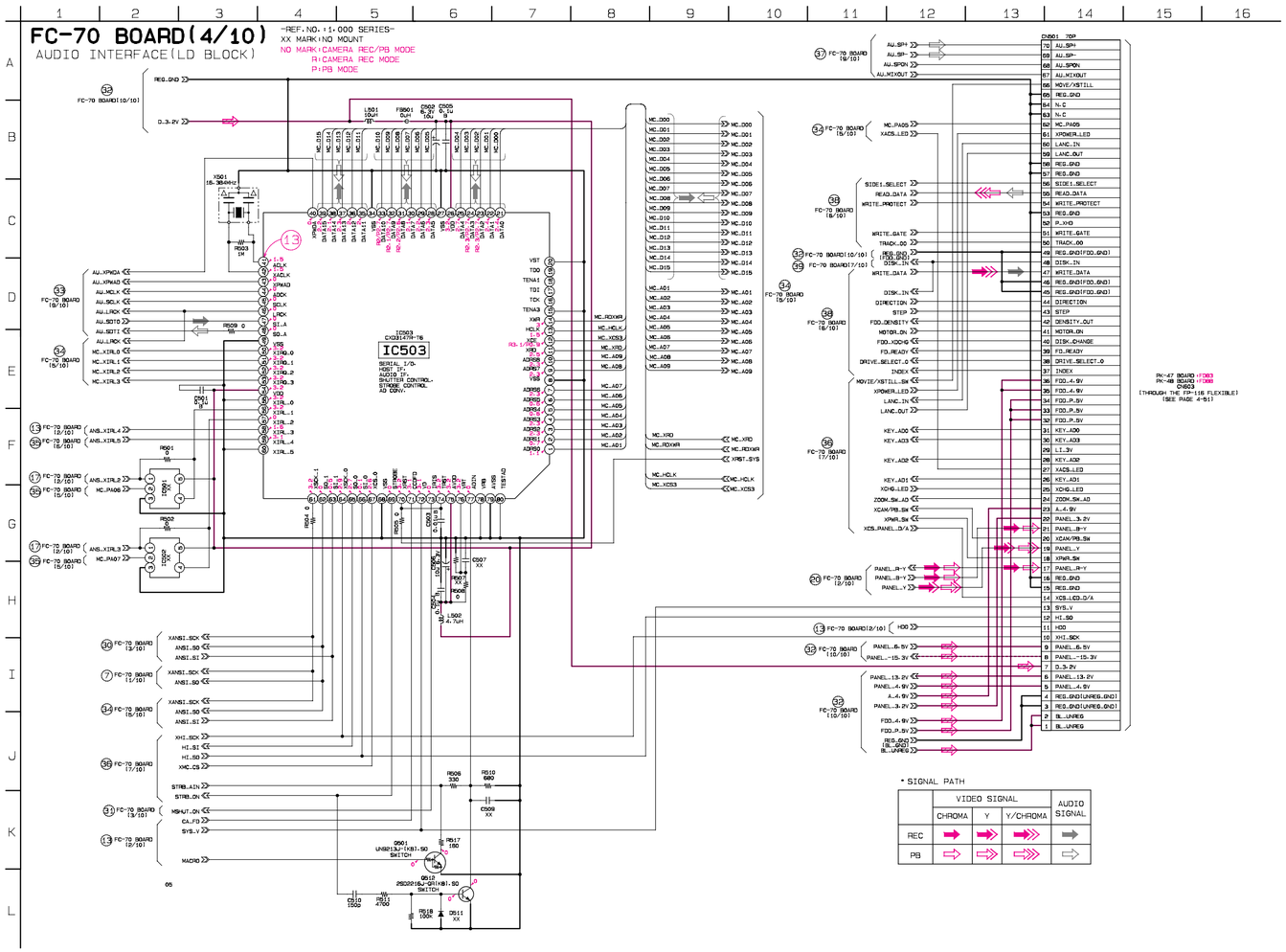
FC-70 BOARD (2/10)



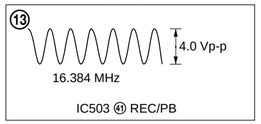
FC-70 (LENS MOTOR DRIVE) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



FC-70 (AUDIO INTERFACE) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



FC-70 BOARD (4/10)



FC-70 (MEDIA CONTROL) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.

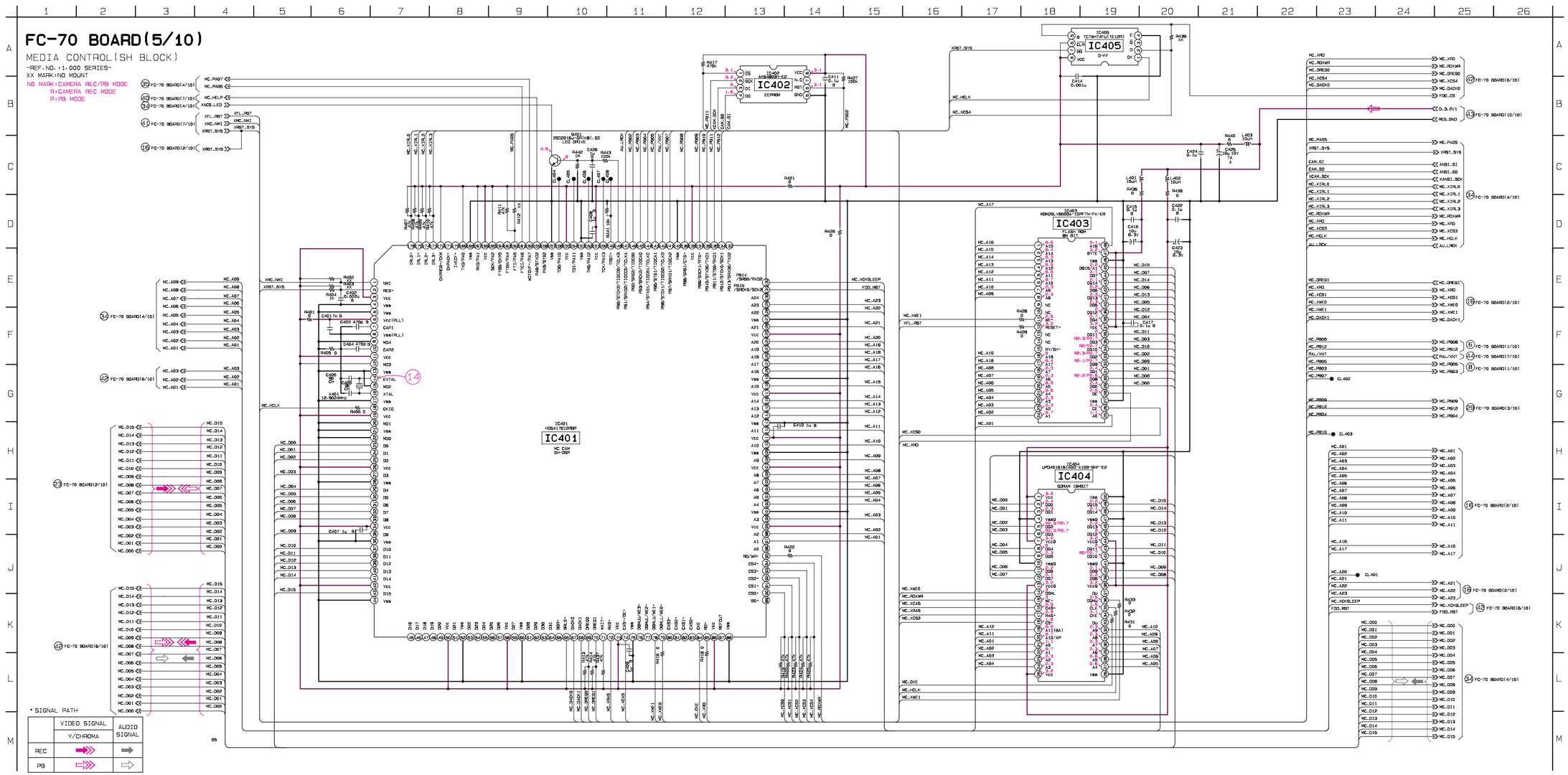
FC-70 BOARD (5/10)

14

1.6 Vp-p

12.9024 MHz

IC401 ⑭ REC/PB



FC-70 (FD CONTROL) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.

FC-70 BOARD(6/10)

FD CONTROL(FDC BLOCK)

-REF.NO.:1.000 SERIES-

XX MARK:NO MOUNT

NO MARK:CAMERA REC/PB MODE

R:CAMERA REC MODE

P:PB MODE

IC902 UPD65943GC-Y01-9EU FD CONTROL

IC903 TC7SH32FU-TE85R BUFFER

IC901 TA8009FN(EL) SHOCK DETECT

FC-70 BOARD (6/10)

15 — 1.3 Vp-p, 48 MHz

IC902 ⑬ REC/PB

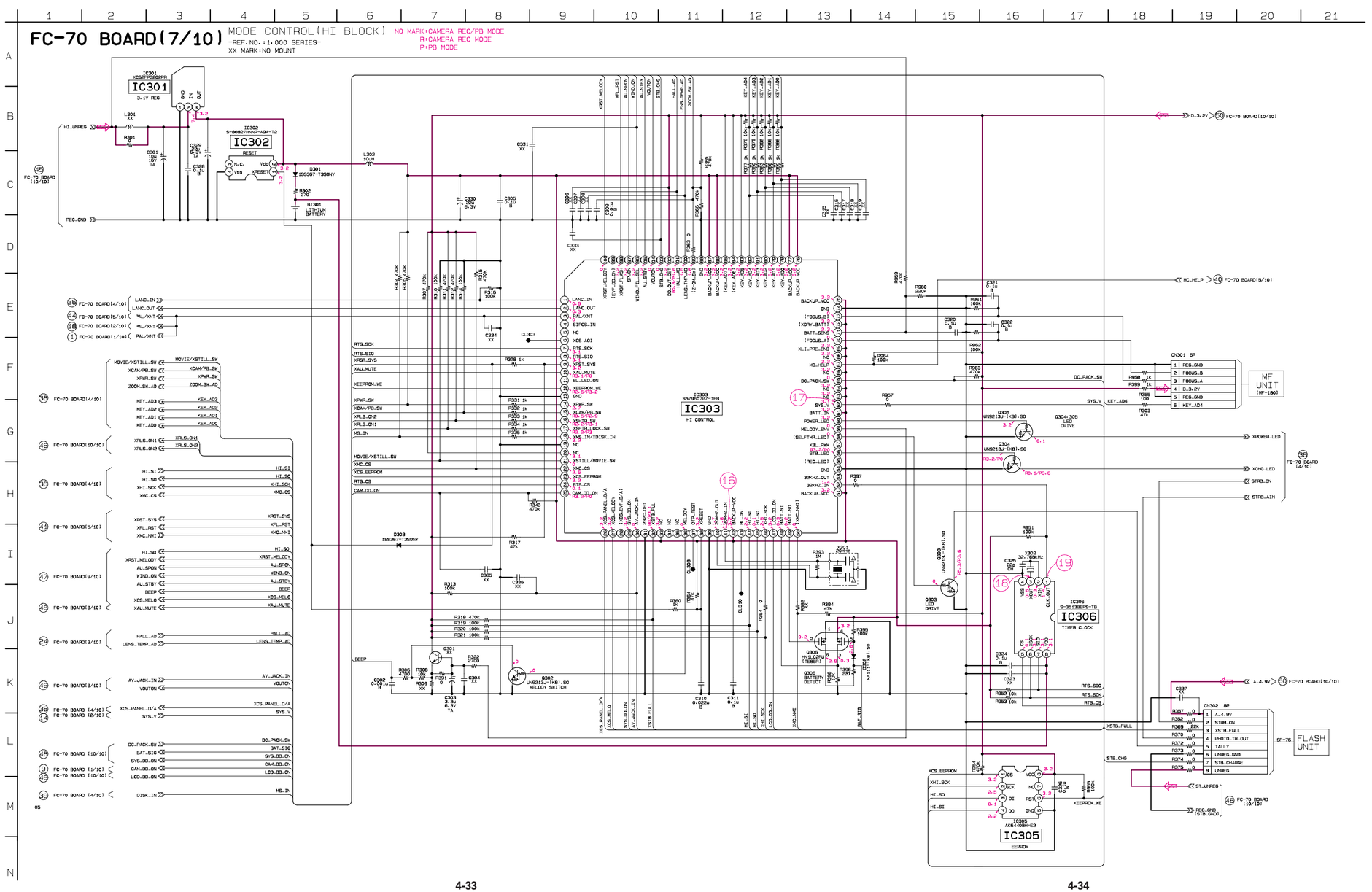
• SIGNAL PATH

	VIDEO SIGNAL Y/CHROMA	AUDIO SIGNAL
REC	⇒	⇒
PB	⇨	⇨

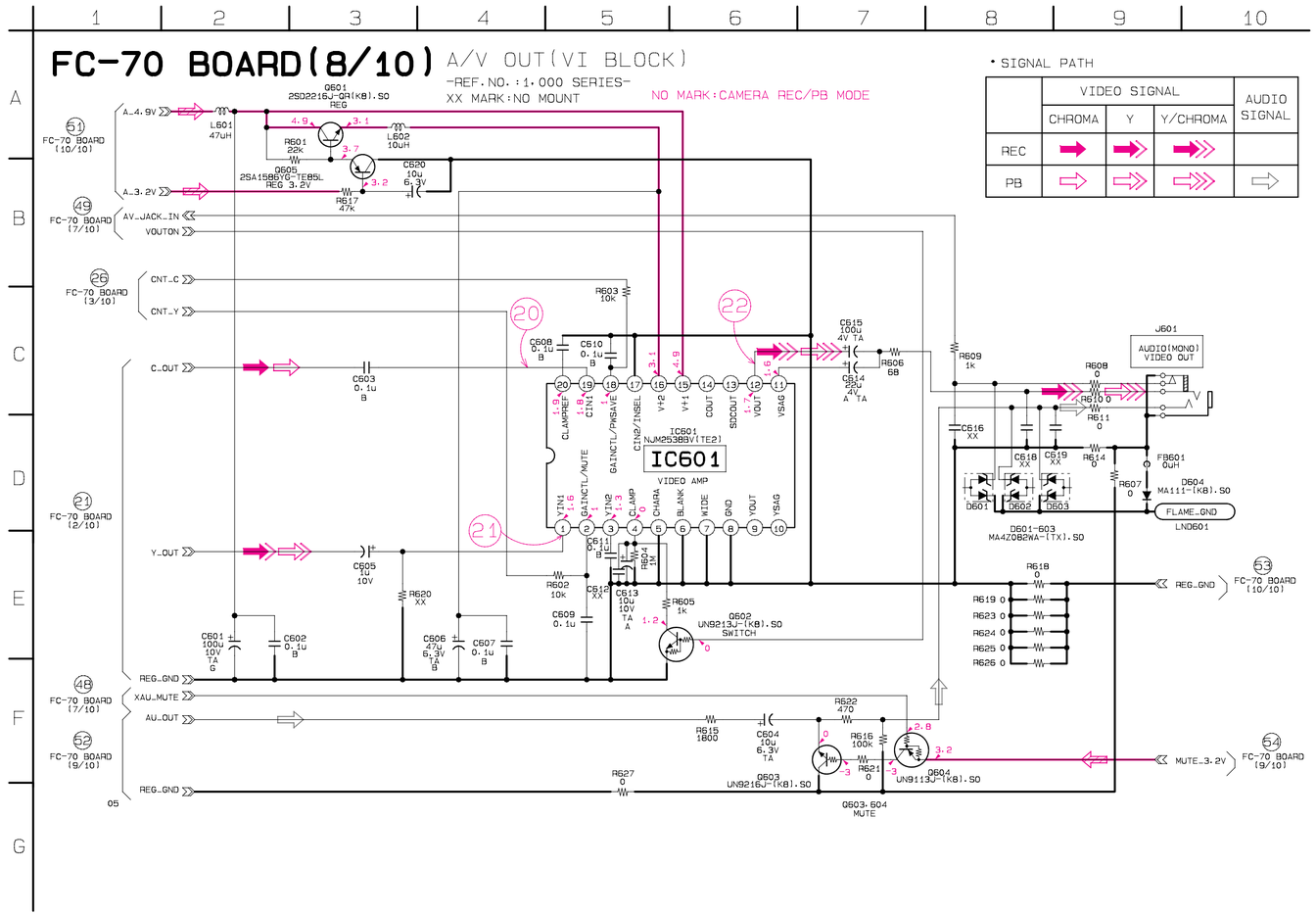
FC-70 (MODE CONTROL) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.

FC-70 BOARD (7/10)

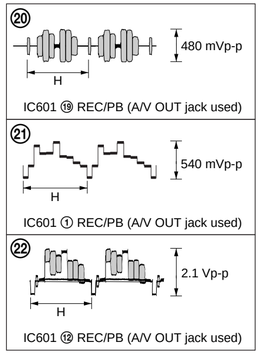
16	3.2 Vp-p, 20 MHz — IC303 41 REC/PB
17	3.2 Vp-p, V — IC303 62 REC/PB
18	700 mVp-p, 32.768 kHz — IC306 3 REC/PB
19	3.2 Vp-p, 32.768 kHz — IC306 1 REC/PB



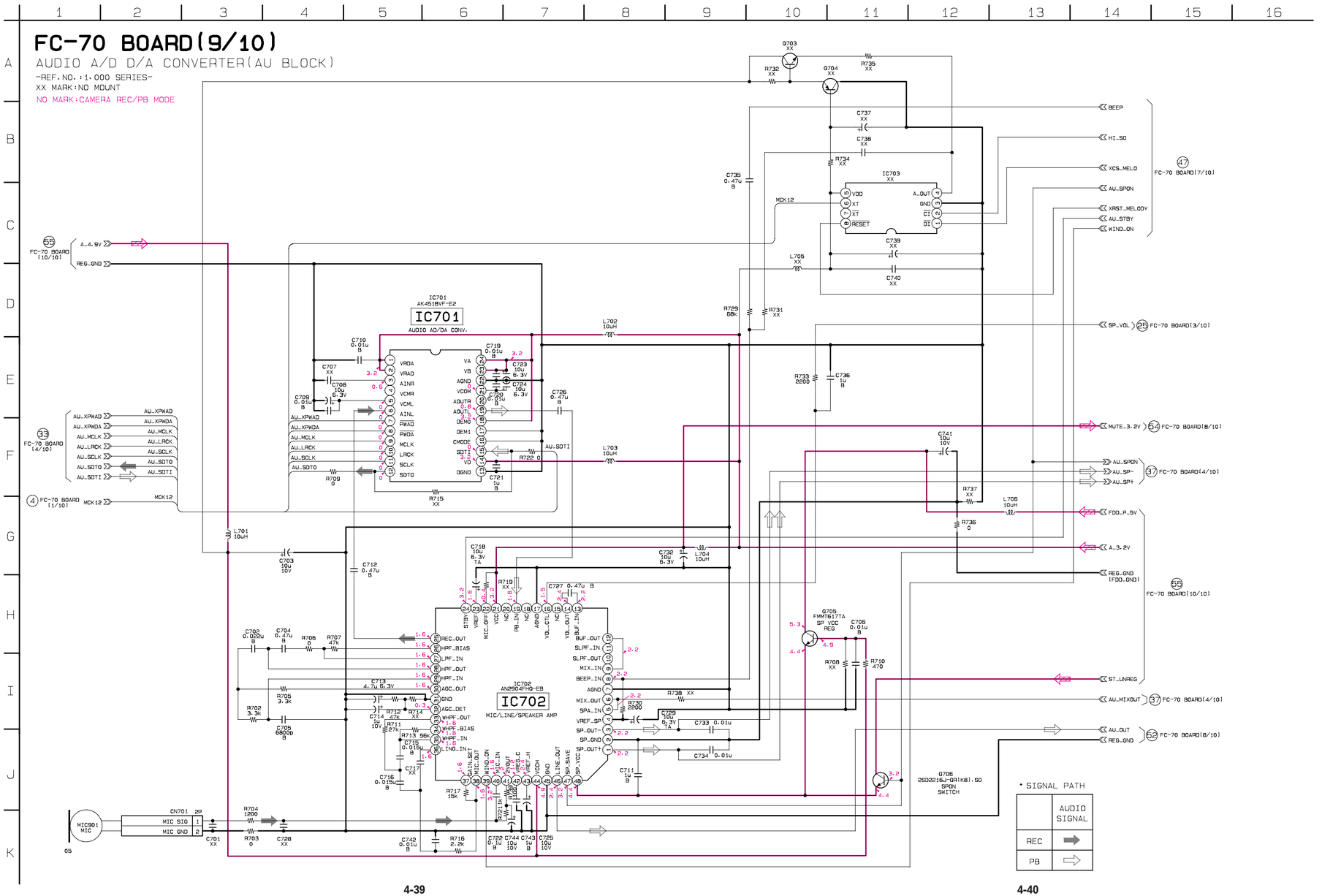
FC-70 (A/V OUT) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



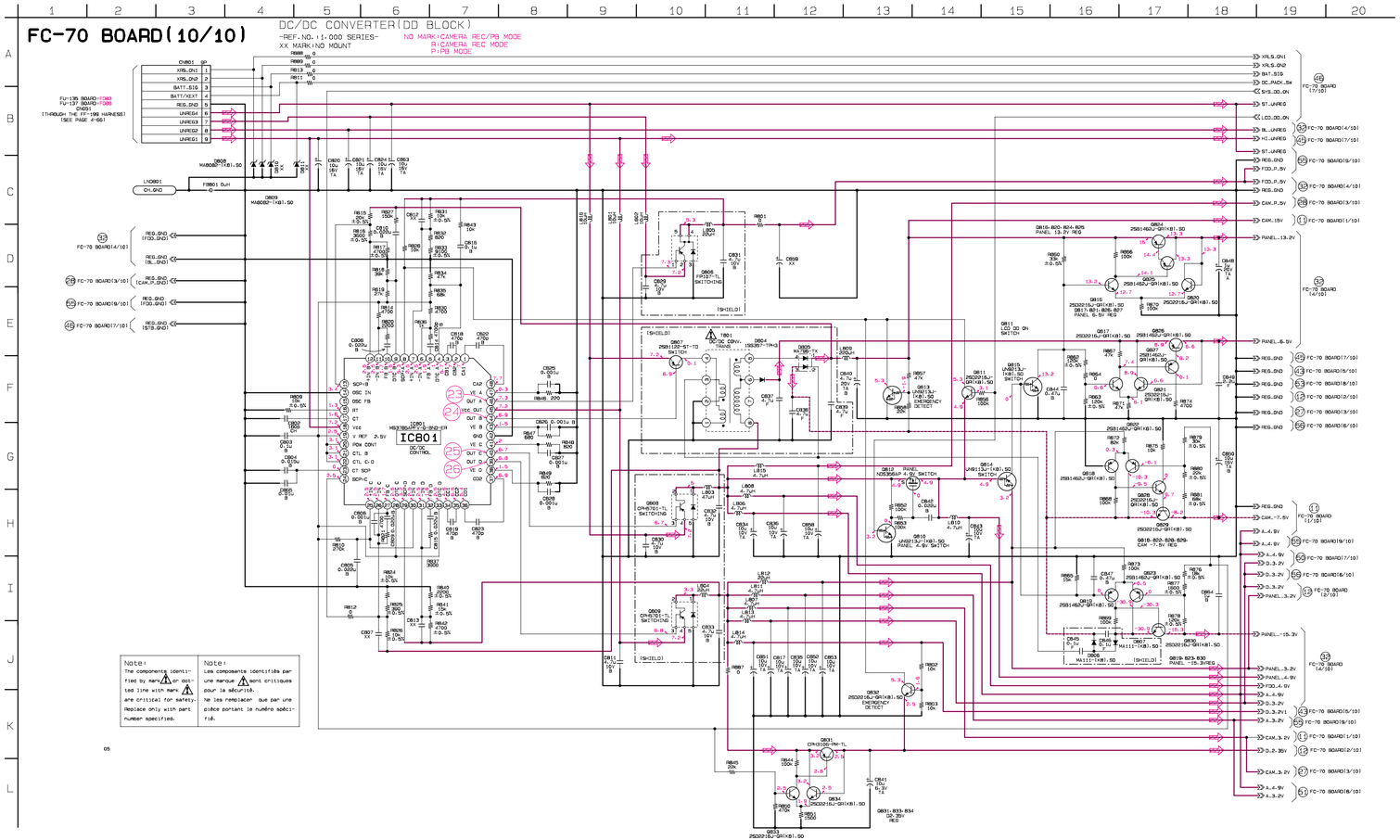
FC-70 BOARD (8/10)



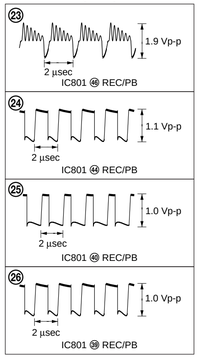
FC-70 (AUDIO A/D D/A CONVERTER) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.



FC-70 (DC/DC CONVERTER) SCHEMATIC DIAGRAM • See page 4-9 for FC-70 printed wiring board.


FC-70 BOARD(10/10)
DC/DC CONVERTER(DD BLOCK)
-REF.NO.1-000 SERIES-
XX MARK:NO MOUNT
NO MARK:CAMERA REC/PB MODE
R:CAMERA REC MODE
P:PB MODE
IC801
MB39C004APF-G-BND2-ERE
DC/DC CONTROL
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FC-70 BOARD (10/10)



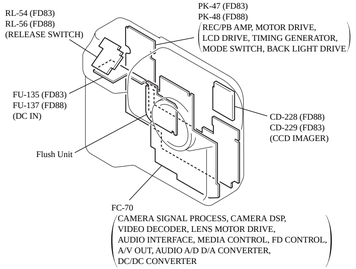
DC/DC CONVERTER
FC-70 (10/10)

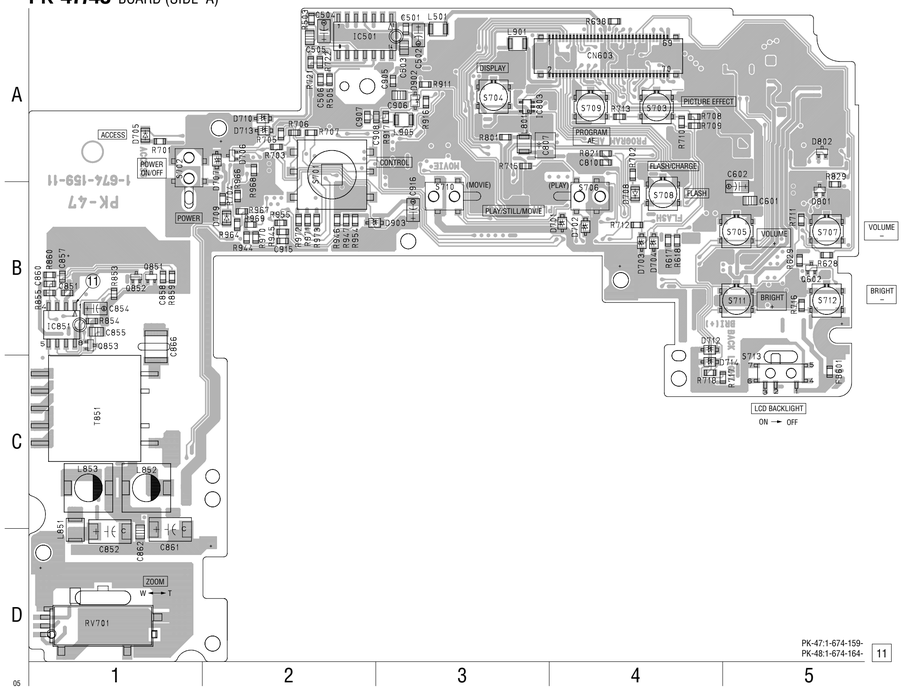
PK-47/48 (REC/PB AMP, MOTOR DRIVE, LCD DRIVE, TIMING GENERATOR, MODE SWITCH, BACK LIGHT DRIVE) PRINTED WIRING BOARD
– Ref. No.: PK-47/48 board; 2,000 series –

- **For Printed Wiring Board.**
- PK-47/48 board is 4-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor

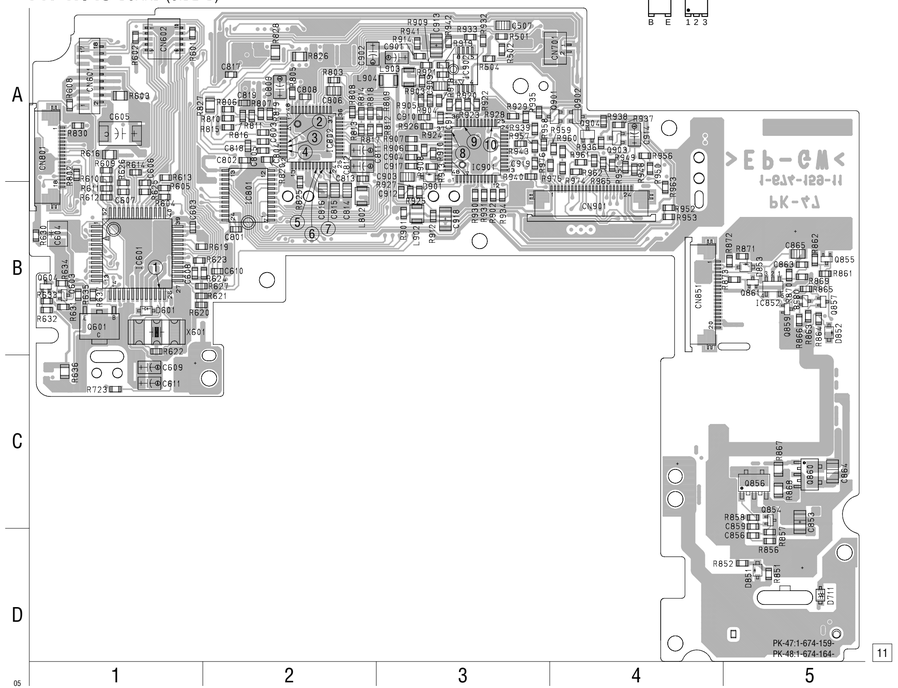
PK-47/48 BOARD (SIDE A)

C601	B-5	R718	C-4
C807	A-3	R821	A-4
C810	A-4	R829	B-5
C851	B-1	R853	B-1
C852	D-1	R854	B-1
C854	B-1	R855	B-1
C855	B-1	R859	B-1
C857	B-1	R860	B-1
C858	B-1	R911	A-3
C861	D-1	R916	A-3
C862	D-1	R917	A-3
C866	B-1	R944	B-2
C905	A-3	R945	B-2
C906	A-3	R946	B-2
C907	A-2	R947	B-2
C908	A-2	R954	B-2
C915	B-2	R959	A-4
C916	B-3	R960	A-4
		R961	A-4
CN603	A-4	R962	A-4
		R964	B-2
D705	A-1	R965	A-4
D708	B-4	R966	B-2
D709	B-2	R967	B-2
D801	B-5	R968	A-2
D802	A-5	R969	B-2
D902	A-3	R970	B-2
D903	B-2	R971	B-2
		R972	B-2
FB601	C-5	R973	B-2
		R974	A-4
IC803	A-3	R975	A-4
IC851	B-1	R976	A-4
L801	A-3	RV701	D-1
L851	D-1		
L852	C-1	S701	A-2
L853	C-1	S702	A-1
L901	A-3	S703	A-4
L905	A-3	S704	A-3
		S705	B-5
Q602	B-5	S706	B-4
Q851	B-1	S707	B-5
Q852	B-1	S708	B-4
Q853	B-1	S709	A-4
		S710	B-3
R628	B-5	S711	B-5
R629	B-5	S712	B-5
R638	A-4	S713	C-5
R701	A-1		
R702	A-4	T851	C-1
R703	A-2		
R704	B-2		
R705	A-2		
R706	A-2		
R707	A-2		
R708	A-4		
R709	A-4		
R710	A-4		
R711	B-5		
R712	B-4		
R713	A-4		
R715	A-3		
R716	B-5		
R717	C-4		



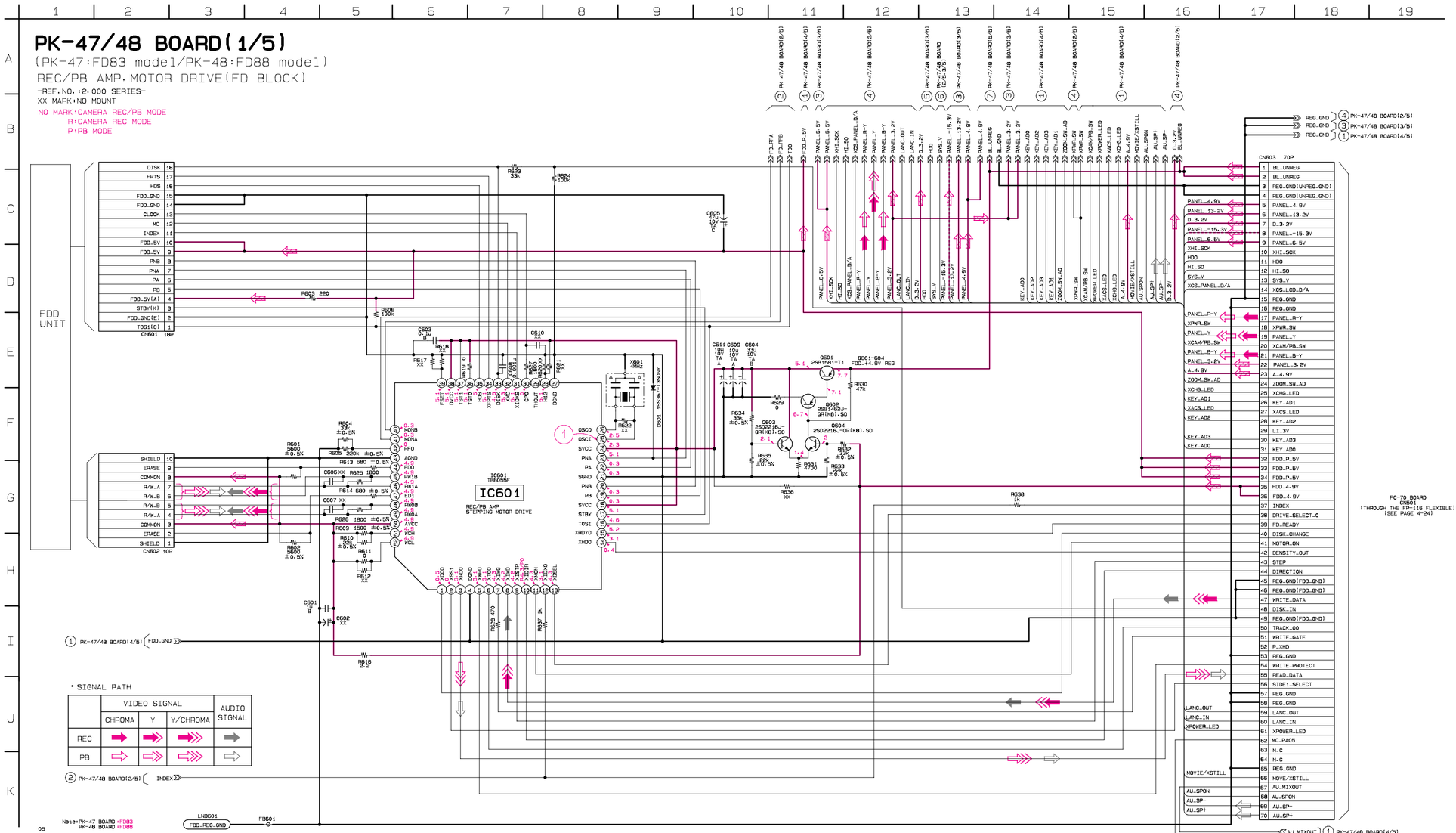


PK-47/48 BOARD (SIDE B)

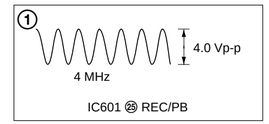


C603	B-1	R601	A-1	R927	B-3
C604	B-1	R602	A-1	R928	A-3
C605	A-1	R603	A-1	R929	A-3
C608	B-1	R604	B-2	R930	B-3
C609	C-1	R605	B-2	R932	A-3
C611	C-1	R608	A-1	R933	A-3
C801	B-2	R609	A-1	R934	B-3
C802	A-2	R610	A-1	R935	A-3
C803	A-2	R611	B-1	R936	A-4
C804	A-2	R613	A-1	R937	A-4
C805	A-2	R614	A-1	R938	A-4
C806	A-2	R616	A-1	R939	A-3
C808	A-2	R619	B-1	R940	A-3
C809	A-2	R623	B-1	R941	A-3
C811	A-2	R624	B-2	R942	A-3
C812	A-2	R625	B-2	R943	A-3
C813	A-2	R626	B-1	R948	A-4
C814	B-2	R627	B-1	R949	A-4
C815	B-2	R630	B-2	R950	A-4
C816	B-2	R631	B-2	R951	A-4
C853	C-5	R632	B-2	R952	B-4
C856	D-5	R633	B-2	R953	B-4
C859	C-5	R634	B-2	R958	A-4
C863	B-5	R635	B-2	R957	A-3
C864	C-5	R637	B-2	R958	A-3
C865	B-5	R723	C-1	R963	B-4
C901	A-3	R802	A-1		
C902	A-2	R803	A-2	X601	B-1
C903	A-3	R808	A-2		
C904	A-3	R809	A-3		
C909	A-3	R810	A-2		
C910	A-3	R812	A-3		
C911	A-3	R813	A-2		
C912	B-3	R814	A-2		
C913	A-3	R816	A-2		
C914	A-4	R817	A-2		
C917	A-3	R818	A-2		
C918	B-3	R819	A-2		
C919	A-3	R820	A-2		
		R825	B-2		
CN601	A-1	R826	A-2		
CN602	A-1	R827	A-2		
CN701	A-4	R828	A-2		
CN801	A-1	R830	A-1		
CN851	B-4	R856	C-5		
CN901	B-4	R857	C-5		
		R858	C-5		
D601	B-1	R861	B-5		
D852	B-5	R862	B-5		
D853	B-5	R863	B-5		
D901	A-3	R864	B-5		
		R865	B-5		
IC601	B-1	R866	B-5		
IC801	B-2	R867	C-5		
IC802	A-2	R868	C-5		
IC852	B-5	R869	B-5		
IC901	A-3	R870	B-5		
IC902	A-3	R871	B-5		
		R872	B-5		
L802	B-2	R873	B-5		
L902	B-3	R901	B-3		
L903	A-3	R902	B-3		
L904	A-3	R903	A-3		
		R904	A-3		
Q601	B-1	R905	A-3		
Q603	B-1	R906	A-3		
Q604	B-1	R907	A-3		
Q854	C-5	R910	A-3		
Q855	B-5	R912	B-3		
Q856	C-5	R913	A-3		
Q857	B-5	R918	A-3		
Q858	B-5	R919	A-3		
Q859	B-5	R920	A-3		
Q860	C-5	R921	A-3		
Q861	B-5	R922	A-3		
Q901	A-4	R923	A-3		
Q902	A-4	R924	A-3		
Q903	A-4	R925	B-3		
Q904	A-4	R926	A-3		

PK-47/48 (REC/PB AMP, MOTOR DRIVE) SCHEMATIC DIAGRAMS • See page 4-45 for PK-47/48 printed wiring board.



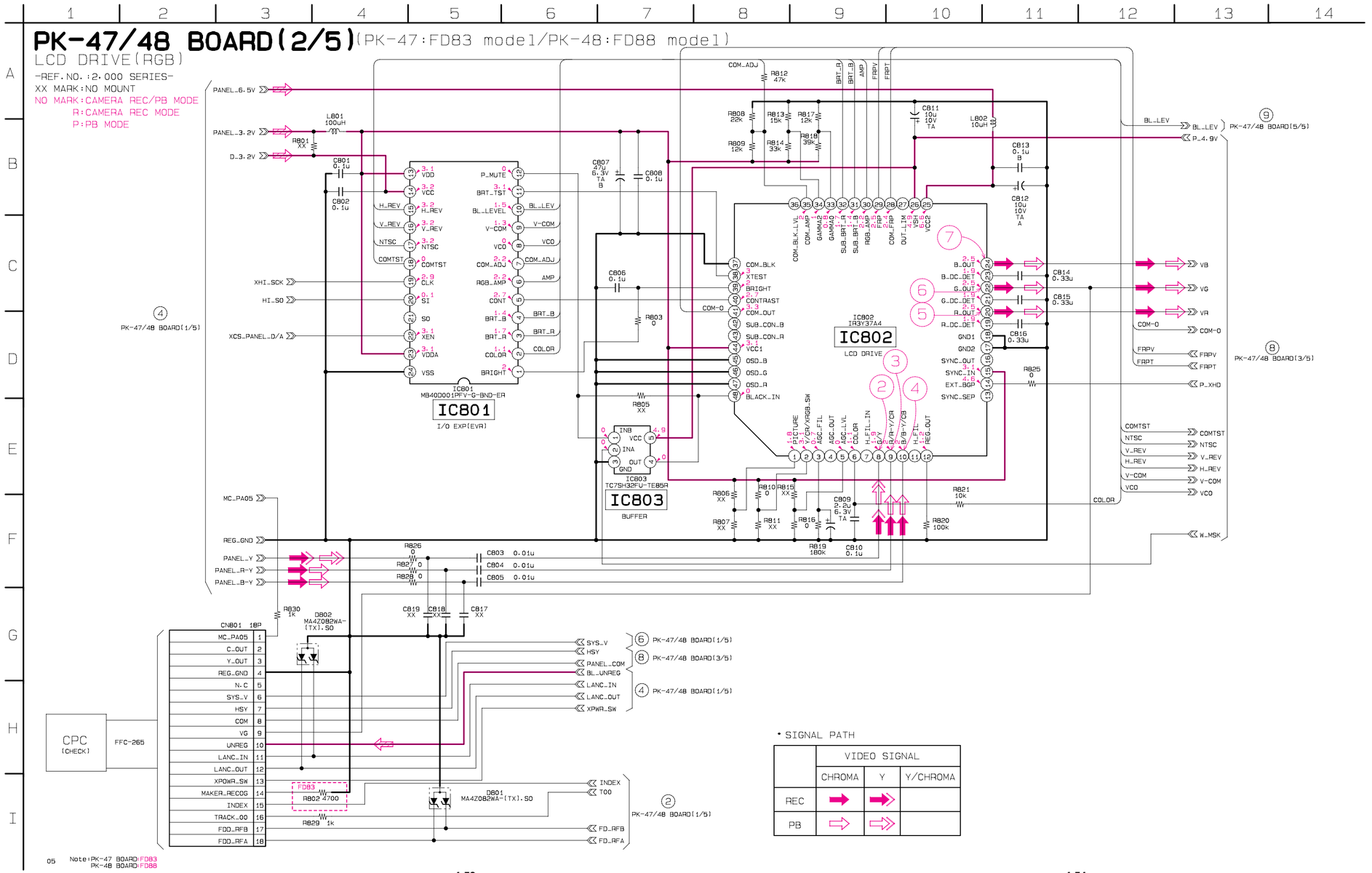
PK-47/48 BOARD (1/5)



PK-47/48 (LCD DRIVE) SCHEMATIC DIAGRAM • See page 4-45 for PK-47/48 printed wiring board.

PK-47/48 BOARD (2/5)

②	580m Vp-p IC802 ⑧ REC/PB
③	460m Vp-p IC802 ⑨ REC/PB
④	220 mVp-p IC802 ⑩ REC/PB
⑤	4.4 Vp-p 2H IC802 ⑳ REC/PB
⑥	4.4 Vp-p 2H IC802 ㉒ REC/PB
⑦	4.4 Vp-p 2H IC802 ㉔ REC/PB



PK-47/48 (TIMING GENERATOR) SCHEMATIC DIAGRAM • See page 4-45 for PK-47/48 printed wiring board.

PK-47/48 BOARD(3/5)(PK-47:FD83 model/PK-48:FD88 model)

TIMING GENERATOR(TG BLOCK)

-REF.NO.:2.000 SERIES-
XX MARK:NO MOUNT
NO MARK:CAMERA REC/PB MODE
( ):FD83(CAMERA REC/PB MODE)
< >:FD88(CAMERA REC/PB MODE)

IC902
IC901
IC901(Note 1)
LZ96H184 •FD88
CM7017L3-T4 •FD83
TIMING GENERATOR
Q901-904
COM DRIVE
LCD901
LCD
UNIT
CN901 24P (Note 1)

1	VSH/CLD
2	VDD/SPD
3	VR/CTR
4	VB/EX3
5	VG/EX2
6	VSS/VB12
7	MODE1/RES
8	MCLK/TST
9	HCNT/VR
10	CLR/VG
11	OE/VB
12	SRTL/GND
13	SRTR/VSH
14	VBC/COM
15	VCOM/VGL
16	MODE2/VSS
17	RESET/MO2
18	GSRT/MO1
19	GPCK/EX1
20	GRES/SPS
21	VREFL/CLS
22	VGL/VCC
23	VREFH/VSH
24	VGH/VGH

Note 1:CN901-IC901 Pin Name
A/B
A:FD83 model
B:FD88 model

• SIGANAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

PK-47/48 BOARD (3/5)

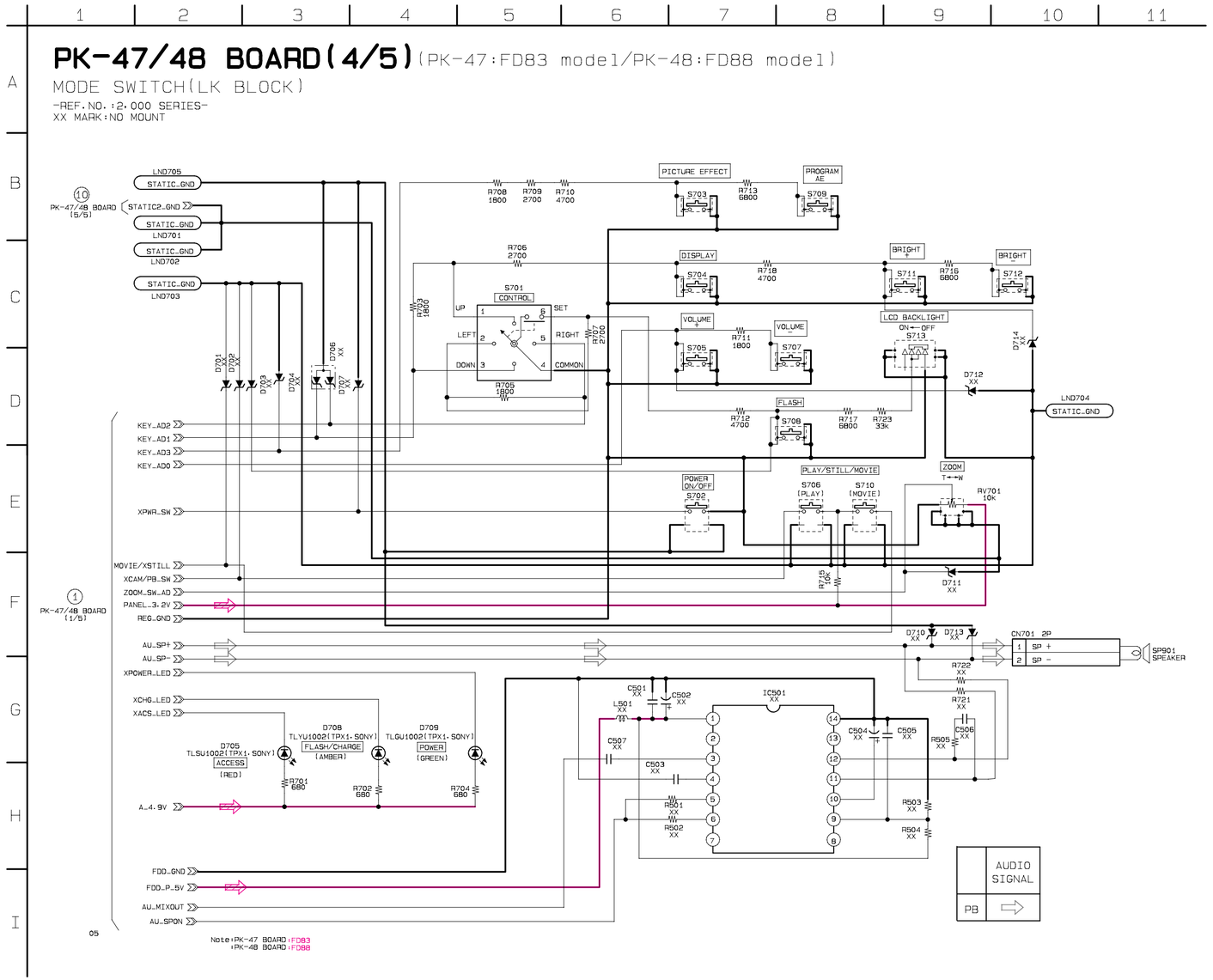
8 — 3.2 Vp-p — H — IC901 ㊲ REC/PB

9 — 2.4 Vp-p — V — IC901 ㉞ REC/PB

10 — 3.8 Vp-p — 150 nsec — IC901 ㉖ REC/PB

Note 2:PK-47 BOARD:FD83
PK-48 BOARD:FD88

PK-47/48 (MODE SWITCH) SCHEMATIC DIAGRAM • See page 4-45 for PK-47/48 printed wiring board.



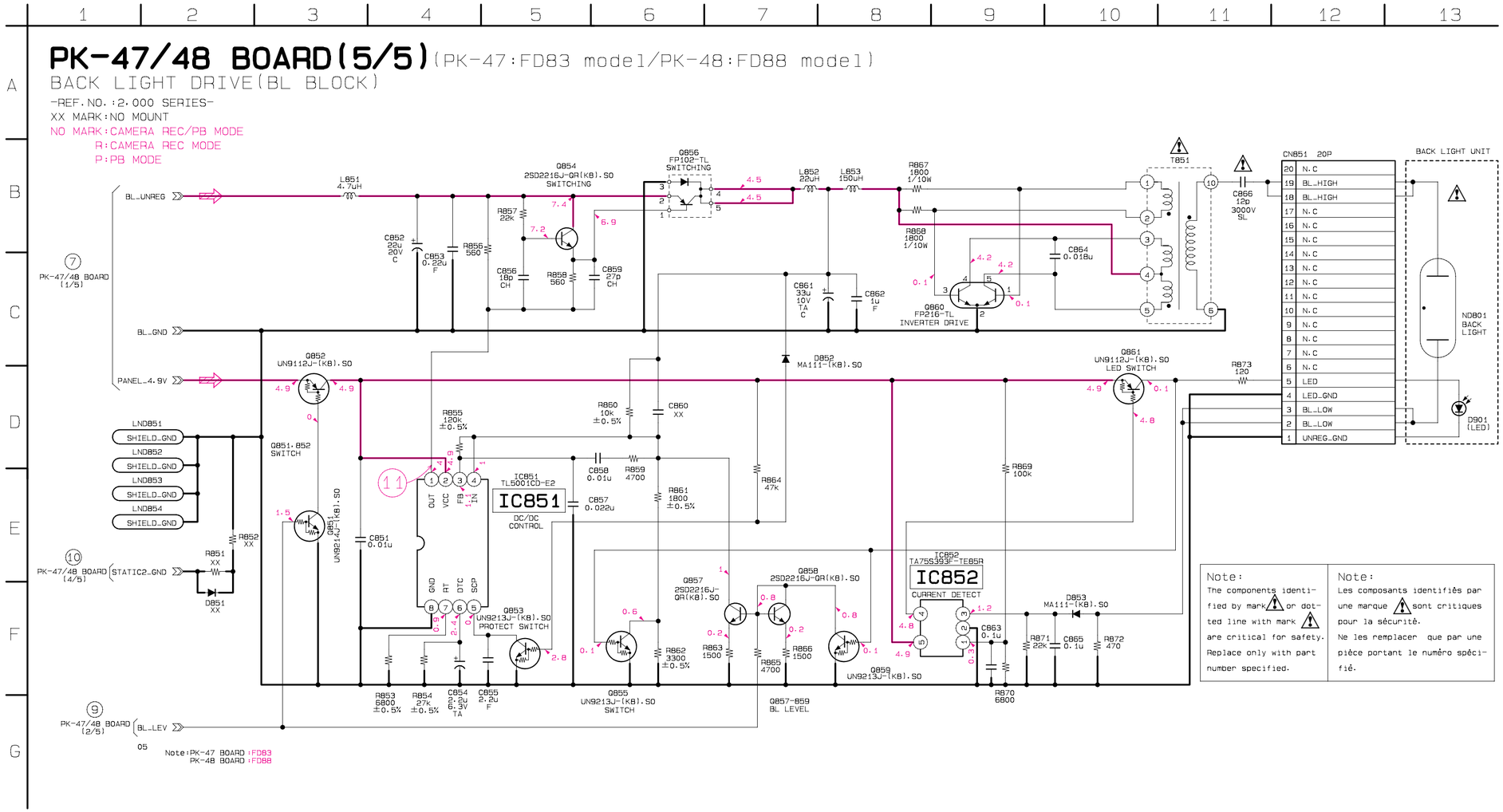
MODE SWITCH
PK-47/48 (4/5)

PK-47/48 (BACK LIGHT DRIVE) SCHEMATIC DIAGRAM • See page 4-45 for PK-47/48 printed wiring board.

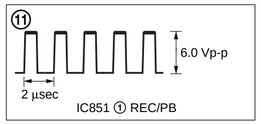
PK-47/48 BOARD(5/5) (PK-47:FD83 model/PK-48:FD88 model)

BACK LIGHT DRIVE(BL BLOCK)

-REF.NO.:2.000 SERIES-
XX MARK:NO MOUNT
NO MARK:CAMERA REC/PB MODE
R:CAMERA REC MODE
P:PB MODE



PK-47/48 BOARD (5/5)



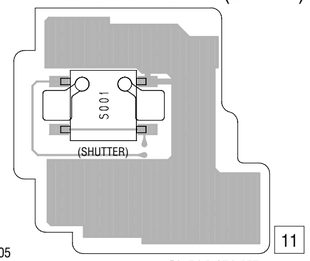
Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

RL-54/56 (RELEASE SWITCH) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: RL-54/56 board; 2,000 series –

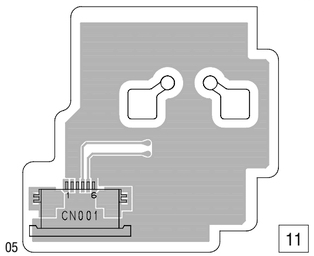
- **For Printed Wiring Board.**
- RL-54/56 board is 4-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.

RL-54/56 BOARD (SIDE A)

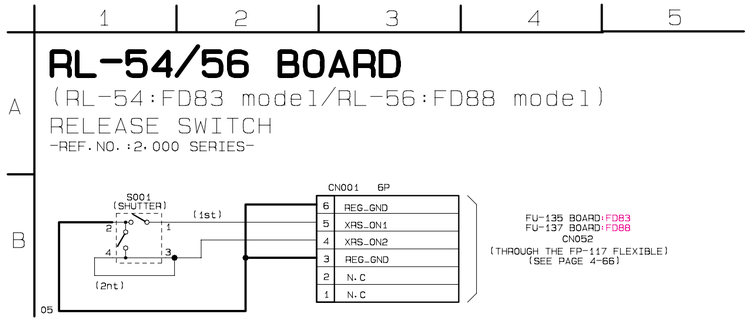


RL-54:1-674-157-
RL-56:1-674-166-

RL-54/56 BOARD (SIDE B)



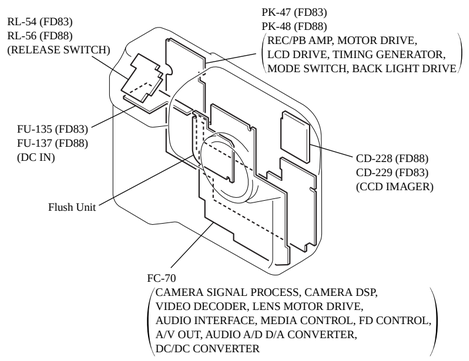
RL-54:1-674-157-
RL-56:1-674-166-



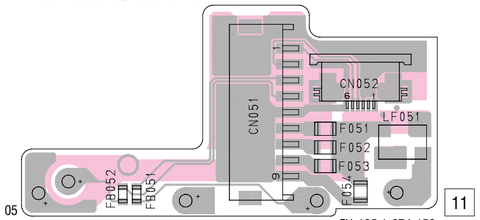
FU-135/137 (DC IN) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: FU-135/137 board; 2,000 series –

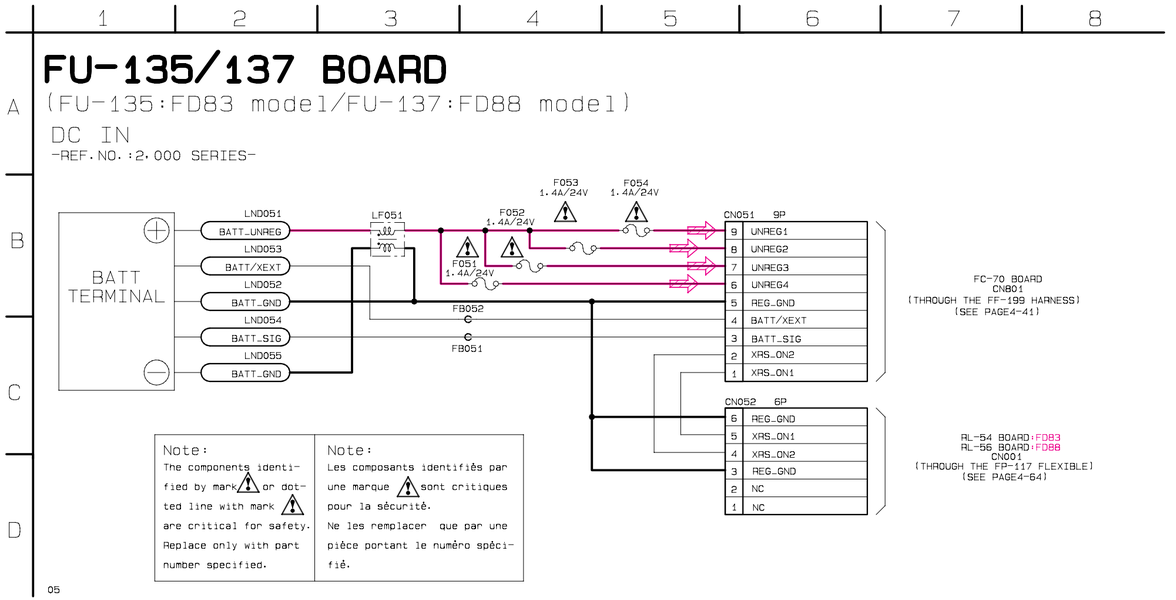
- **For Printed Wiring Board.**
- FU-135/137 board is 4-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are few cases that the part isn't mounted in this model is printed on this diagram.



FU-135/137 BOARD



FU-135:1-674-158-
FU-137:1-674-165-



SECTION 5
ADJUSTMENTS

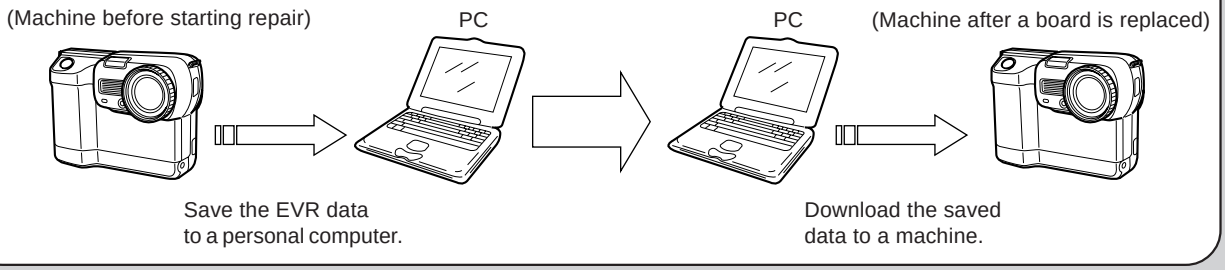
Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

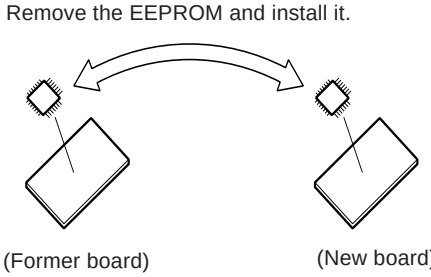
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



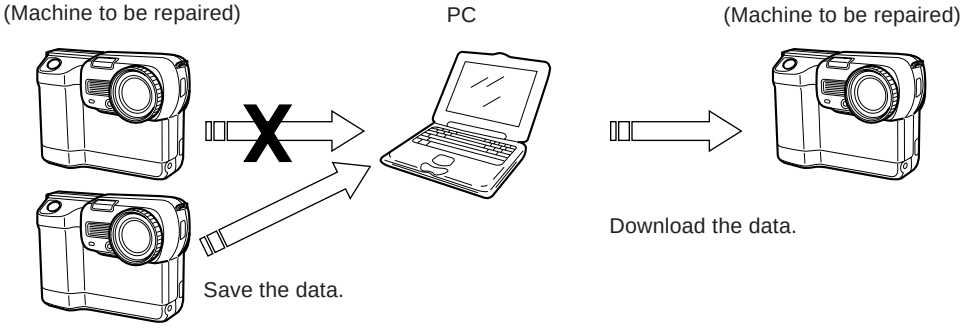
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked.)

1. Adjusting Items when Replacing Main Parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment section	Adjustment	Replaced parts: Block replacement: Lens device (FD83)	Lens device (FD88)	Flash unit	LCD block LCD901 (LCD panel)	LCD block ND801 Back light unit	FDD unit	Mounted parts replacement: CD-229 board IC101 (CCD imager) (FD83)	CD-228 board IC201 (CCD imager) (FD88)	FC-70 board IC004 (S/H, AGC, A/D) (FD83)	FC-70 board IC004 (S/H, AGC, A/D) (FD88)	FC-70 board IC106 (EVR)	FC-70 board IC201 (CAMERA DSP)	FC-70 board IC601 (VIDEO AMP)	PK-47/48 board IC801 (EVR)	PK-47/48 board IC802 (LCD drive)	PK-47/48 board IC901 (Timing generator)
Initialization of B, D, E, F page data	Initialization of D page data																
	Initialization of B, E, F page data																
Video	Video sync level adj.											●	●	●			
	Video burst level adj.											●	●	●			
Camera	HALL adj.	●	●									●					
	Flange back adj.	●	●					●	●								
	F No. standard data input	●	●					●	●								
	Mechanical shutter adjustment (FD88)		●						●								
	Light level adj.	●	●					●	●	●	●						
	Auto white balance standard data input	●	●					●	●	●	●						
	White balance ND filter compensation (FD88)		●						●		●						
	Auto white balance adj.	●	●					●	●	●	●						
	Color reproduction adj.	●	●					●	●	●	●						
	Color reproduction adj. (ND filter ON) (FD88)		●						●		●						
	Strobe white balance adj.			●				●	●	●	●						
	CCD defect compensation							●	●								
LCD	LCD initial data input																
	VCO adj. (NTSC)														●		●
	VCO adj. (PAL)														●		●
	D range adj.														●	●	
	Bright adj.														●	●	
	Contrast adj.														●	●	
	Color adj.														●	●	
	V-COM level adj.														●	●	
	V-COM adj.				●										●	●	
	White balance adj.				●	●									●	●	
System control	Battery down adj.																
	Alignment check (FDD unit)						●										

Table. 5-1-1

2. Adjusting Items when Replacing Boards and EEPROM

When replacing board and EEPROM, adjust the items indicated by ● in the following table.

Adjustment section	Adjustment	Replaced parts				
		Board replacement				
		FC-70 board (COMPLETE) (FD83)	FC-70 board (COMPLETE) (FD88)	PK-47/48 board (COMPLETE)	FC-70 board IC305 EEP R	FC-70 board IC402 EEP ROM
Initialization of B, D, E, F page data	Initialization of D page data	●	●		●	
	Initialization of B, E, F page data	●	●			●
Video	Video sync level adj.	●	●			●
	Video burst level adj.	●	●			●
Camera	HALL adj.	●	●			●
	Flange back adj.	●	●			●
	F No. standard data input	●	●			●
	Mechanical shutter adjustment (FD88)		●			●
	Light level adj.	●	●			●
	Auto white balance standard data input	●	●			●
	White balance ND filter compensation (FD88)		●			●
	Auto white balance adj.	●	●			●
	Color reproduction adj.	●	●			●
	Color reproduction adj. (ND filter ON) (FD88)		●			●
	Strobe white balance adj.	●	●			●
	CCD defect compensation	●	●			●
LCD	LCD initial data input	●	●	●	●	
	VCO adj. (NTSC)	●	●	●	●	
	VCO adj. (PAL)	●	●	●	●	
	D range adj.	●	●	●	●	
	Bright adj.	●	●	●	●	
	Contrast adj.	●	●	●	●	
	Color adj.	●	●	●	●	
	V-COM level adj.	●	●	●	●	
	V-COM adj.	●	●	●	●	
	White balance adj.	●	●	●	●	
System control	Battery down adj.	●	●	●	●	
	Alignment check (FDD unit)			●		

Table. 5-1-2

5-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of service tools

Oscilloscope　　Regulated power supply　　Vectorscope　　TV monitor
Digital voltmeter　　Frequency counter　　AC power adaptor (BC-V615)

Ref. No.	Name		Parts Code	Usage
J-1	Filter for color temperature correction (C14)		J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0		J-6080-808-A	White balance check
	ND filter 0.4		J-6080-806-A	White balance check
	ND filter 0.1		J-6080-807-A	White balance check
J-3	Pattern box PTB-450		J-6082-200-A	
J-4	Color chart for pattern box		J-6020-250-A	
J-5	Siemens star		J-6080-875-A	For checking the flange back
J-6	Adjusting remote commander (RM-95 upgraded) Note2		J-6082-053-B	
J-7	Clear chart		J-6080-621-A	White balance adjustment.
J-8	CPC-9 (12-pin/18-pin, 0.5 mm)		J-6082-393-B	LANC signal, R.G.B. signal check.
J-9	Extension cable		J-6082-427-A	FDD UNIT-PK-47/48 board
J-10	Alignment disk (Two disks as a pair)	TFD2-1(+)	8-967-990-01	Dynamic inspection disk with LCD adjustment signal
		TFD2-2(–)	8-967-990-11	
J-11	Personal computer			PC with Windows95 installed
J-12	Cleaning disk (OR-D29WA)		8-960-009-39	FDD head cleaning *Note 1
	Cleaning disk		Available on market	
J-13	Mini pattern box		J-6082-353-B	For adjusting the flange back
J-14	Power cord (Note 3)		J-6082-223-A	For the battery end adjustment
J-15	Back ground paper		J-2501-130-A	For adjusting the strobe

Note 1: Usage and operating note
One or two seconds of momentary use of cleaning disk is sufficient such that FD is accessed momentarily by system control when the main power is turned on. After cleaning, insert a FD for playback. When cleaning is insufficient, use a cleaning disk again.
Caution: Avoid using a cleaning disk excessively. Head can be broken.

Note 2: If the microprocessor IC in the adjusting remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new microprocessor (8-759-148-35).

Note 3: Connect the adjusting remote commander to the LANC jack, and set to HOLD switch to the “ADJ” side.

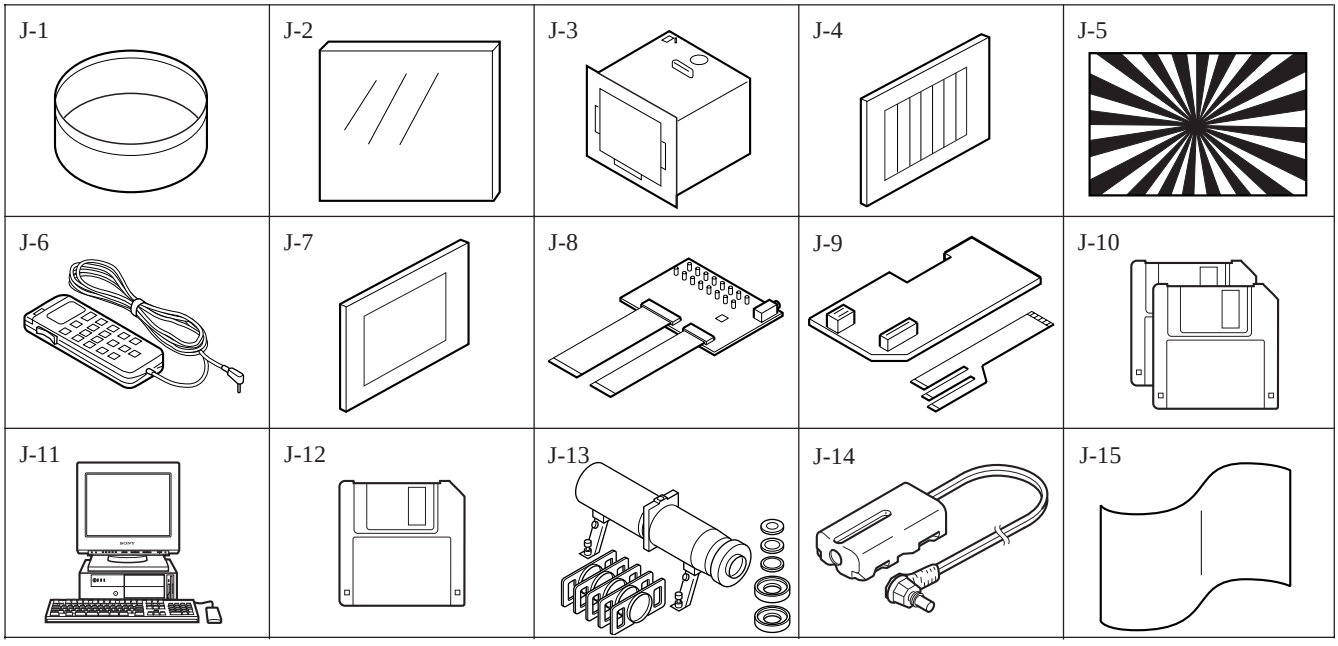


Fig. 5-1-1

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note 2: When performing only the adjustments, the lens block and boards need not be disassemble.

1) Connect the equipment for adjustments according to Fig. 5-1-5.
2) Connect the Adjusting remote commander to PK-47/48 board CN801 via CPC-9 jig (J-6082-393-B). (See Fig. 5-1-3)

Note 3: Setting the "Forced STILL mode power ON" Mode
   1) Select page: 0, address: 01, and set data: 01.
   2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjusting remote commander.
   The Above procedure will enable the camera power to the turned on. After completing adjustments, be sure to exit the "Forced STILL mode power ON Mode".

Note 4: Exiting the "Forced STILL mode power ON Mode"
   1) Select page: 0, address: 01, and set data: 01.
   2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjusting remote commander.
   3) Select page: 0, address: 01, and set data: 00.

1-1-3. Discharging of the flashlight power supply

The capacitor which is used as power supply of flashlight is charged with 200 V to 300 V voltage. Discharge this voltage before starting adjustments in order to protect service engineers from electric shock during adjustment.

Discharge procedure

1. Press the FLASH button (PK-47/48 board S708 and turn off the FLASH LED (PK-47/48 board D708).
2. Fabricate the discharging jig as shown in Fig. 5-1-4 locally by yourself. Connect the discharging jig to the positive (+) and negative (–) terminal of the flash voltage charge capacitor. Allow ten seconds to discharge the voltage.

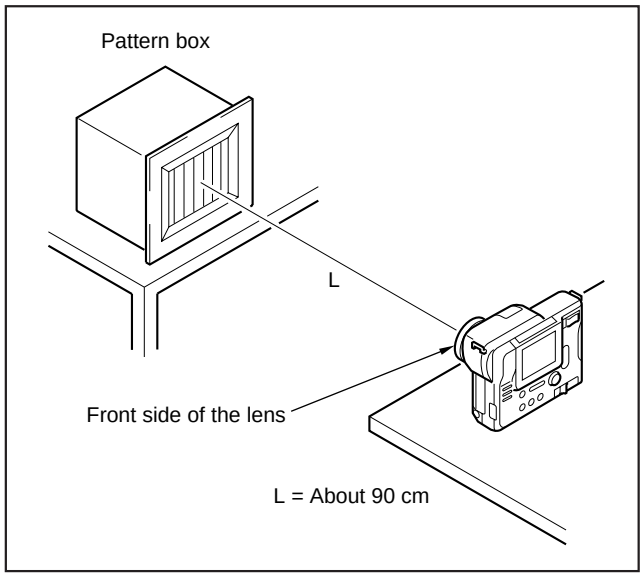
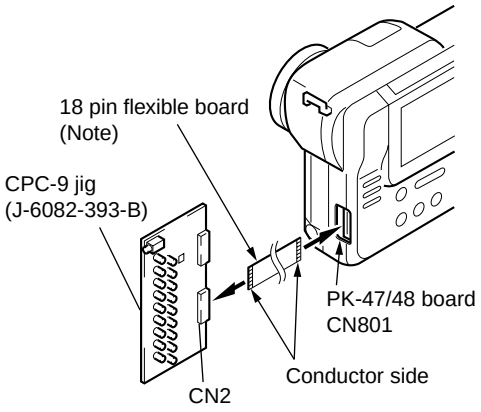


Fig. 5-1-2



Note: Don't use the 12 pin flexible board of CPC-9 jig. It causes damage to the unit.

Fig. 5-1-3

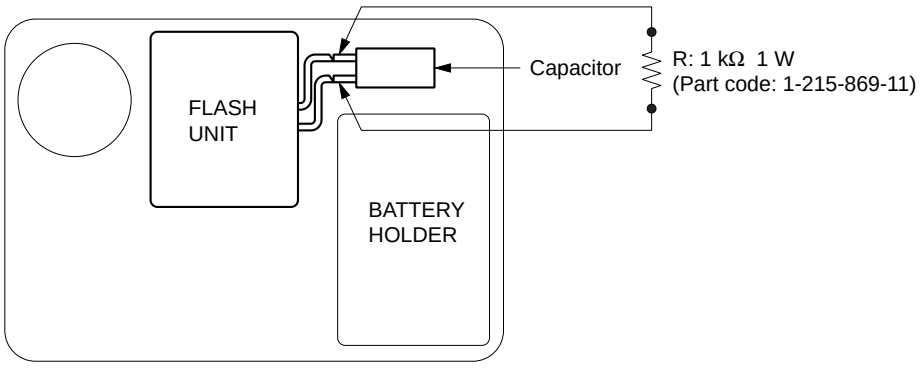
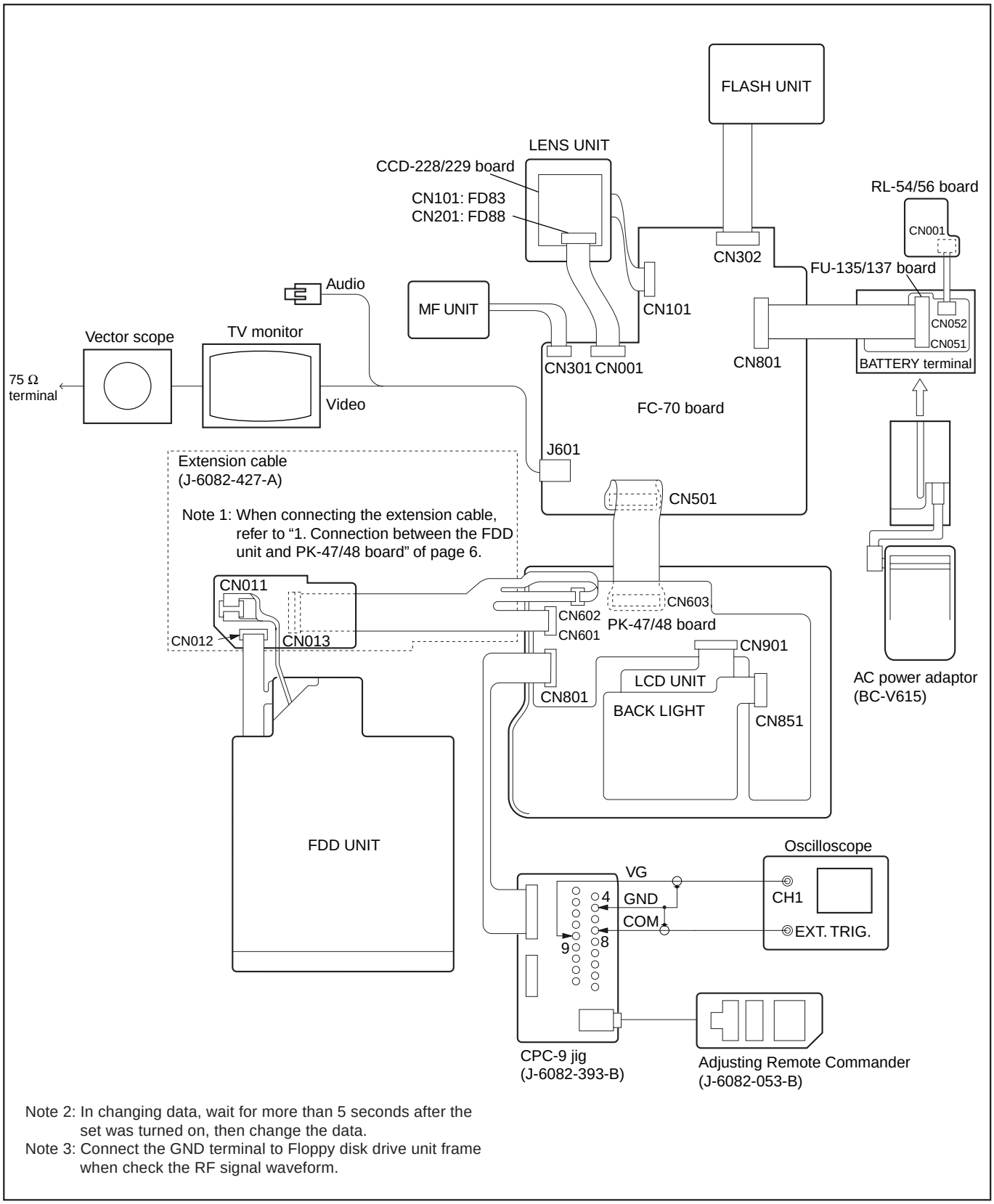


Fig. 5-1-4



Note 2: In changing data, wait for more than 5 seconds after the set was turned on, then change the data.
Note 3: Connect the GND terminal to Floppy disk drive unit frame when check the RF signal waveform.

Fig. 5-1-5

1-1-4. Precautions

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments.

1. FOCUS AUTO/MANUAL switch ..... MANUAL
2. PROGRAM AE button (PK-47/48 board S709)
   ..... AUTO (No mark indicated on LCD)
3. PICTURE EFFECT button
   (PK-47/48 board S703) ..... OFF
4. DISPLAY button (PK-47/48 board S704) ..... OSD OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

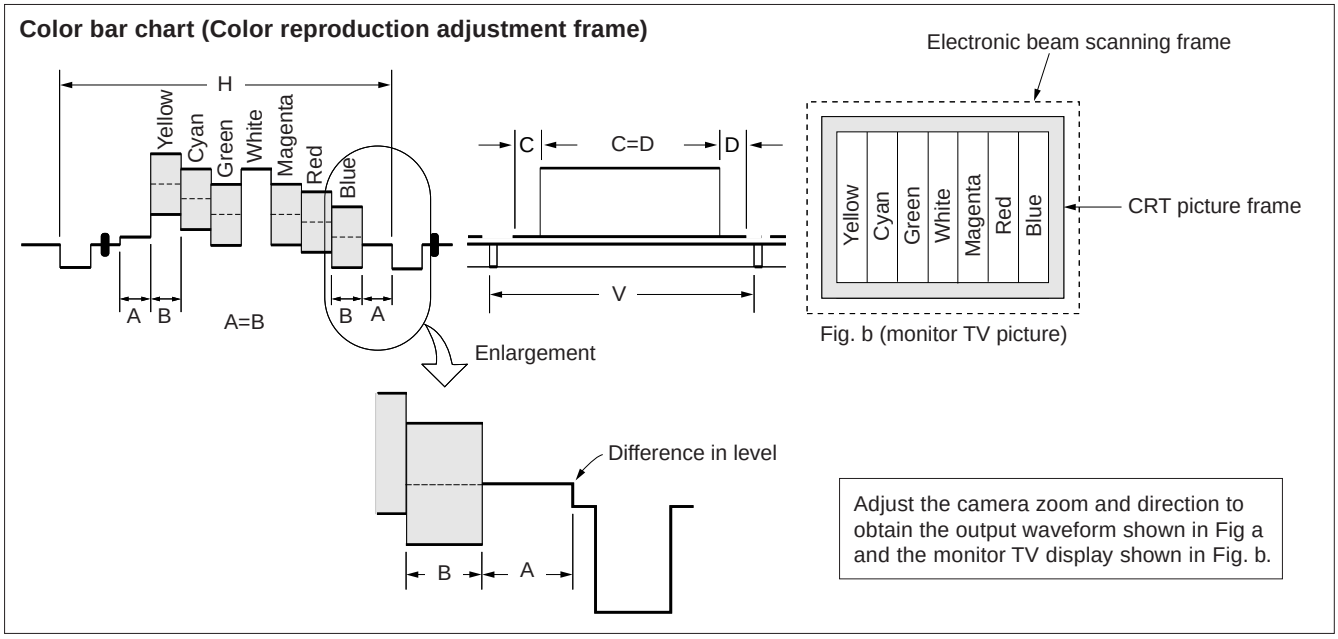


Fig. 5-1-6

3. Subjects

1) Color bar chart (Standard picture frame).
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-6. (Standard picture frame)
2) Clear chart (Standard picture frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)
3) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189 mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 5-1-7.

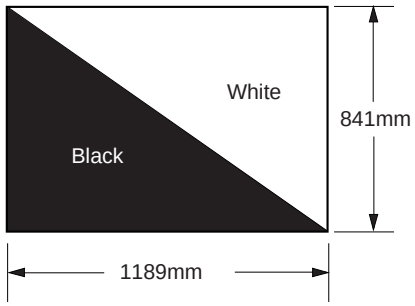


Fig. 5-1-7

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

4. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate flash adjustment. If it is not available, prepare the flash adjustment box as given below;

1) Provide woody board A, B and C of 15 mm thickness.

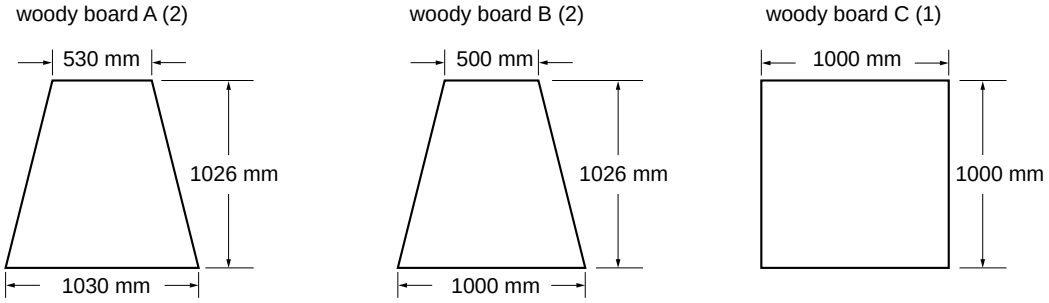


Fig. 5-1-8

2) Apply black mat paint to one side of woody board A and B.
3) Attach background paper (J-2501-130-A) to woody board C.
4) Assemble so that the back sides of woody board A, B and C and the background paper side are internal. (Fig 5-1-9)

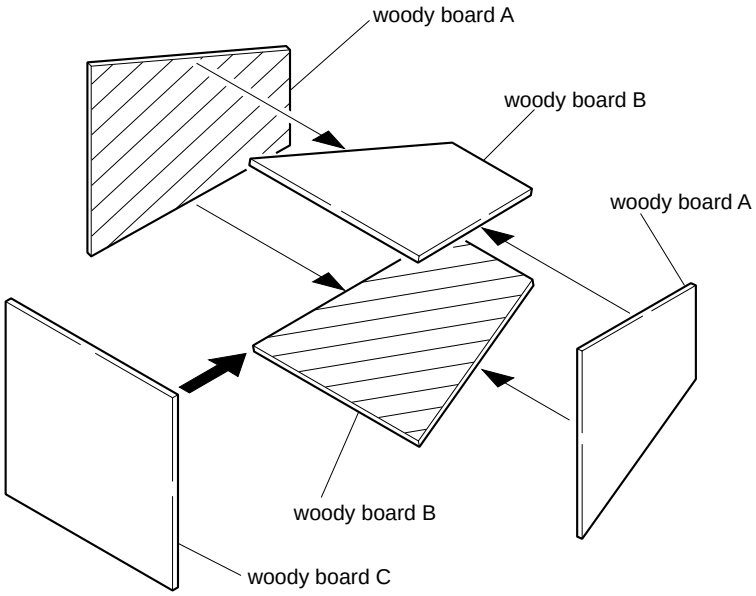


Fig. 5-1-9

1-2. INITIALIZATION OF B, D, E, F PAGE DATA

1-2-1. Initialization of D Page Data

1. Initializing the D Page Data

Note: If the D page data has been initialized, the following adjustments need to be performed again.
1) Modification of D page data
2) LCD system adjustments
3) Battery end adjustments

Adjustment Page	D
Adjustment Address	10 to FF

Initializing Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 03, and set data: 02.
3) Select page: 2, address: 00, and set data: 2D.
4) Select page: 2, address: 01, set data: 2D and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 02, and check that the data changes to "01".
6) Perform "Modification of D Page Data"

2. Modification of D Page Data

If D Page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note: If copy the data built in the different model, the this unit may not operate.

3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D Page data

1) Select page: 2, address: 00, and set data: 29.
2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjusting remote commander.

3. D Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing the D Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of D Page Data")

Address	Initial Value		Remark
	FD83	FD88	
10	00	00	Test mode
11 to 16	Fixed data-1 (Initialized data)		
17	Fixed data-2		
18 to 22	Fixed data-1 (Initialized data)		
23	Fixed data-2 (FD83) Fixed data-1 (Initialized data) (FD88)		
24 to 27	Fixed data-1 (Initialized data)		
28	Fixed data-2 (FD83) Fixed data-1 (Initialized data) (FD88)		
29 to 2F	Fixed data-1 (Initialized data)		
30	80	80	Battery down adj.
31	88	88	
32	AD	AD	
33	C2	C2	
34	CD	CD	
35 to 37	Fixed data-1 (Initialized data)		
38	Fixed data-2		
39			
3A			
3B			
3C	Fixed data-1 (Initialized data)		
3D	Fixed data-2		
3E			
3F			
40			
41			
42, 43	Fixed data-1 (Initialized data)		
44	Fixed data-2		
45			
46			
47 to 7F	Fixed data-1 (Initialized data)		
80	BB	BC	Bright Adjustment (LCD)
81	6F	80	Color Adjustment (LCD)
82	77	B9	White Balance Adjustment (LCD)
83	7A	B7	
84	DB	BE	Contrast Adjustment (LCD)
85	78	C8	D Range Adjustment (LCD)
86	70	7C	V-COM Level Adjustment (LCD)
87	6F	50	VCO Adjustment (NTSC) (LCD)
88	97	74	V-COM Adjustment (LCD)
89	Fixed data-2		
8A,8B	Fixed data-1 (Initialized data)		
8C	Fixed data-2		
8D	6F	50	VCO Adjustment (PAL) (LCD)
8E	Fixed data-2		
8F			
90 to C2	Fixed data-1 (Initialized data)		
C3	Fixed data-2		
C4 to FF	Fixed data-1 (Initialized data)		

Table. 5-1-3

1-2-2. Initialization of B, E, F Page Data

1. Initializing the B, E, F Page Data

Note: If the B, E, F page data has been initialized, "Modification of B, E, F Page Data" and following adjustments need to be performed again.
1) Modification of B, E, F page data
2) Video system adjustments
3) Camera system adjustments

Adjustment Page	B
Adjustment Address	00 to FF
Adjustment Page	E
Adjustment Address	00 to FF
Adjustment Page	F
Adjustment Address	10 to FF

Initializing Method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 00, and set data: 2D.
3) Select page: 6, address: 01, set data: 2D and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 02, and check that the data changes to "01".
5) Perform "Modification of B, E, F Page Data"

2. Modification of B, E, F Page Data

If the B, E, F Page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:
1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camrecorder may not operate.
3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of B, E, F Page data
1) Select page: 2, address: 00, and set data: 29.
2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjusting remote commander.

3. B Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing the B, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of B, E, F Page Data")

Address	Initial Value	Remark
00 to 87	Fixed data-1 (Initialized data)	
88	0F	CCD defect compensation
89	FF	
8A	0F	
8B	FF	
8C	0F	
8D	FF	
8E	0F	
8F	FF	
90	0F	
91	FF	
92	0F	
93	FF	
94	0F	
95	FF	
96	0F	
97	FF	
98	0F	
99	FF	
9A	0F	
9B	FF	
9C	0F	
9D	FF	
9E	0F	
9F	FF	
A0	0F	
A1	FF	
A2	0F	
A3	FF	
A4	0F	
A5	FF	
A6	0F	
A7	FF	
A8	0F	
A9	FF	
AA	0F	
AB	FF	
AC	0F	
AD	FF	
AE	0F	
AF	FF	
B0 to FF	Fixed data-1 (Initialized data)	

Table. 5-1-4

4. E Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing the B, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of B, E, F Page Data")

Address	Initial Value	Remark
00 to FF	Fixed data-1 (Initialized data)	

Table. 5-1-5

5. F Page Table

Note 1: Fixed data-1: Initialized Data. (Refer to "1. Initializing the B, E, F Page Data")
Fixed data-2: Modified Data. (Refer to "2. Modification of B, E, F Page Data")

Address	Initial Value		Remark
	FD83	FD88	
10 to 13	Fixed data-1 (Initialized data)		
14	22	1C	Flange back adj.
15	44	94	
16	31	26	
17	32	EC	
18	16	13	
19	BA	B9	
1A	00	00	
1B	00	00	
1C	00	00	
1D	00	00	
1E	35	46	
1F	00	00	
20	20	20	
21	20	20	
22	6E	20	
23	44	44	
24	0A	0A	
25	00	00	
26	A8	A8	Light level adj.
27	Fixed data-1 (Initialized data)		
28	85	85	Light level adj.
29	5C	5C	F No. standard data input
2A	4E	4E	
2B	49	49	
2C	45	45	
2D	Fixed data-1 (Initialized data)		
2E	7A	7A	HALL adj.
2F	77	77	
30 to 33	Fixed data-1 (Initialized data)		
34	14	14	HALL adj.
35	78	78	
36 to 39	Fixed data-1 (Initialized data)		
3A	2F	2F	Auto white balance standard data input
3B	37	37	
3C	40	40	
3D	D0	D0	
3E	Fixed data-1 (Initialized data)		
3F	B5	B5	Auto white balance adj.
40	43	43	
41	03	03	Color reproduction adj.
42	E9	E9	
43	63	63	
44	83	83	
45	D5	D5	
46	FE	FE	
47	73	73	
48	45	45	
49 to 4C	Fixed data-1 (Initialized data)		
4D	27	27	Strobe white balance adj.
4E	77	77	
4F	–	00	White balance ND filter compensation (FD88) Fixed data-1 (Initialized data) (FD83)
50	–	00	Color reproductrion adj. (ND filter ON) (FD88)
52	–	00	Fixed data-1 (Initialized data) (FD83)
53	–	00	
54	–	00	
55	–	00	
56	–	00	
57	–	00	
58	–	00	
59	Fixed data-1 (Initialized data)		
5A	–	14	Mechanical shutter adj. (FD88) Fixed data-1 (Initialized data) (FD83)
5B	Fixed data-1 (Initialized data)		
5C	48	48	Color reproduction adj.
5D	00	00	
5E	00	00	
5F	00	00	
60	–	00	Color reproduction adj. (ND filter ON)
61	–	00	(FD88)
62	–	00	Fixed data-1 (Intialized data)
63	–	00	(FD83)
64	Fixed data-1 (Initialized data)		
65	61	61	Video sync level adj.
66	61	61	Video burst level adj.
67	Fixed data-1 (Initialized data)		
68	0B	0B	Strobe white balance adj.
69	3B	3B	
6A	00	00	
6B	2B	2B	
6C	–	0B	Mechanical shutter adj. (FD88)
6D	–	C2	Fixed data-1 (Initialized data) (FD83)
6E	–	09	
6F	–	42	
70	–	06	
71	–	C2	
72	–	05	
73	–	C2	
74	–	04	
75	–	C2	
76	–	33	
77	–	33	
78	–	33	
79	–	33	
7A	–	33	
7B	–	33	
7C	–	33	
7D	–	33	
7E	–	33	
7F	–	33	
80 to FF	Fixed data-1 (Initialized data)		

Table. 5-1-6

1-3. VIDEO SYSTEM ADJUSTMENTS

1. Video Sync Level Adjustment

Adjust the sync level of the composite video signal output

Mode	PLAY
Signal	Color bar (Test signal)
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	65
Specified Value	A=286 ± 5 mV (NTSC) A=300 ± 6 mV (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 5, address: F1, and set data: 04.
3) Select page: F, address: 65, change the data and set the sync level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 0, address: 01, and set data: 00.

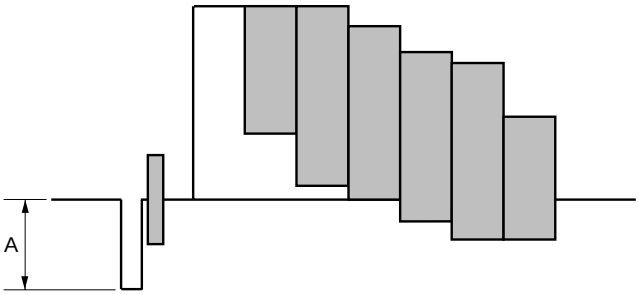


Fig. 5-1-10

2. Video Burst Level Adjustment

Adjust the burst level of the composite video signal output

Mode	PLAY
Signal	Color bar (Test signal)
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	A=286 ± 5 mV (NTSC) A=300 ± 6 mV (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 5, address: F1, and set data: 04.
3) Select page: F, address: 66, change the data and set the burst level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 0, address: 01, and set data: 00.

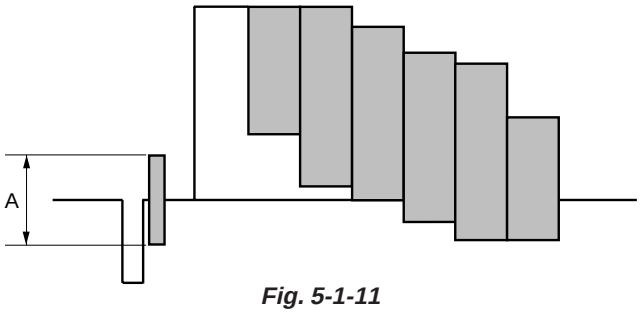


Fig. 5-1-11

1-4. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.

1. HALL Adjustment

For detecting the position of lens iris, adjust the HALL AMP gain and offset.

Mode	STILL
Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 2)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	2E, 2F, 34, 35
Specified Value	12 to 16 during IRIS OPEN 76 to 7A during IRIS CLOSE

Note 1: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Note 2: The right two digits of the page: 1 displayed data of the adjusting remote commander

1:00:XX
└——→ Object data

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 94, and set data: 14.
3) Select page: 6, address: 95, and set data: 78.
4) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjusting remote commander.
   (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 2E, 2F, 34 and 35)
5) Select page: 6, address: 02, and check that the data is "01".
6) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.

Checking method:

1) Select page: 0, address: 03, and set data: 03.
2) Select page: 6, address: 01, and set data: 01, and press the PAUSE button of the adjusting remote commander.
3) Select page: 1, and check that the displayed data (Note 2) during IRIS OPEN satisfies the specified value.
4) Select page: 6, address: 01, and set data: 03, and press the PAUSE button of the adjusting remote commander.
5) Select page: 1, and check that the displayed data (Note 2) during IRIS CLOSE satisfies the specified value.

Processing after Completing Adjustments:

1) Select page: 0, address: 03, and set data: 00.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 95, and set data: 00.
4) Select page: 6, address: 94, and set data: 00.
5) Select page: 0, address: 01, and set data: 00.

2. Flange Back Adjustment (Using the mini-pattern box)

The inner focus lens flange back adjustment is carried out automatically.
If disordered, the focus will be deviated during auto/manual focusing.

Mode	STILL
Subject	Siemens star chart with ND filter for mini-pattern box (Note 1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note 1: Siemens star chart used is a darker one.
Note 2: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Preparation:
Install the mini-pattern box as shown below.
Note: The attachment lenses are not used.

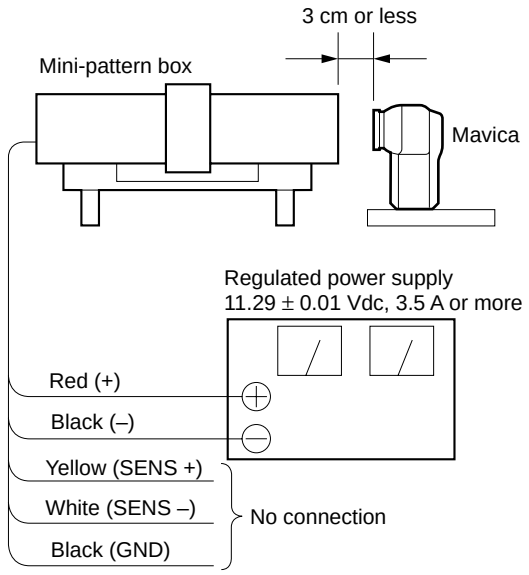


Fig. 5-1-12

Adjusting method:
1) Install the unit so that the distance between its lens surface and mini-pattern box is less than 3 cm.
2) Align both heights of unit and mini-pattern box.
3) Make sure that the output voltage of regulated power supply is 11.29 ± 0.01 Vdc.
4) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.
5) Select page: 0, address: 01, and set data: 01.
6) Check that the data on page: F, addresses: 14 to 25 are initial values (See table below).

Address	Data		Address	Data	
	FD83	FD88		FD83	FD88
14	22	1C	1D	00	00
15	44	94	1E	35	46
16	31	26	1F	00	00
17	32	EC	20	20	20
18	16	13	21	20	20
19	BA	B9	22	6E	20
1A	00	00	23	44	44
1B	00	00	24	0A	0A
1C	00	00	25	00	00

7) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjusting remote commander.
8) Select page: 6, address: 01, set data: 27, and press the PAUSE button of the adjusting remote commander.
(The flange back adjustment is performed and the adjustment data is stored in page: F, address: 14 to 25)
9) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:
1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "Flange Back Check".

3. Flange Back Adjustment (Using the flange back adjustment chart)

The inner focus lens flange back adjustment is carried out automatically.
If disordered, the focus will be deviated during auto/manual focusing.

Mode	STILL
Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 300 to 400 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	14 to 25

Note 1: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Place the Flange back adjustment chart 2.0 m from the front of the lens.
2) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.
3) Select page: 0, address: 01, and set data: 01.
4) Check that the data on page: F, addresses: 14 to 25 are initial values (See table below).

Address	Data		Address	Data	
	FD83	FD88		FD83	FD88
14	22	1C	1D	00	00
14	22	1C	1D	00	00
15	44	94	1E	35	46
16	31	26	1F	00	00
17	32	EC	20	20	20
18	16	13	21	20	20
19	BA	B9	22	6E	20
1A	00	00	23	44	44
1B	00	00	24	0A	0A
1C	00	00	25	00	00

5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjusting remote commander.
6) Select page: 6, address: 01, set data: 15, and press the PAUSE button of the adjusting remote commander.
(The flange back adjustment is performed and the adjustment data is stored in page: F, addresses: 14 to 25)
7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing of Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "Flange Back Check".

4. Flange Back Check

Mode	STILL
Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Checking method:

1) Place the Siemens star 2.0 m from the front of the lens.
2) Shoot the Siemens star with the TELE end.
3) Turn on the auto focus.
4) Check that the lens is focused.
5) Select page: 6, address: 2C, and set data: 01.
6) While observe the TV monitor, change the zoom to the WIDE end and check that the lens is focused.

Processing after Completing of Adjustments:

1) Select page: 6, address: 2C, and set data: 00.

5. Picture Frame Setting

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame) (About 90 cm from the front of lens)
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A = B, C = D, E = F

Setting method:

1) Adjust the focus using focus ring.
2) Adjust the camera direction and zoom, and set to the specified position.
3) Mark the position of the picture frame on the TV monitor, and adjust the picture frame to this position in following adjustments using “Color reproduction adjustment frame”.

Check on the oscilloscope

1. Horizontal period

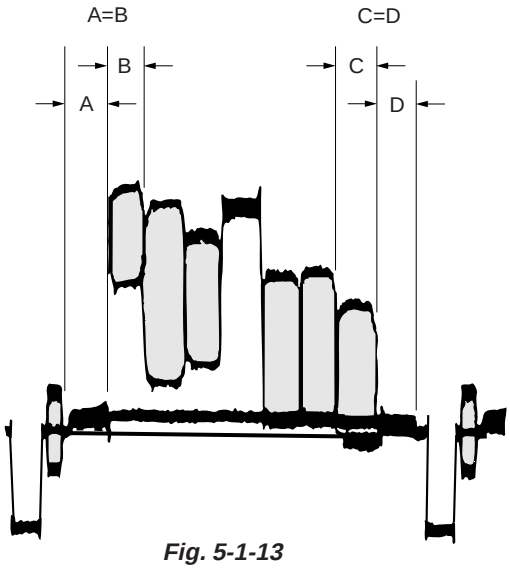


Fig. 5-1-13

2. Vertical period

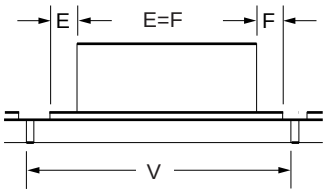


Fig. 5-1-14

Check on the TV monitor

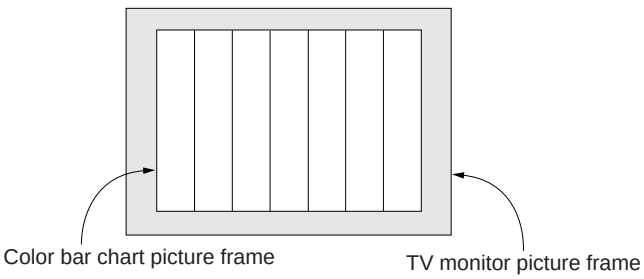


Fig. 5-1-15

6. F No. Standard Data Input

Compensate the unevenness of the iris meter sensitivity.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	29 to 2C

Note 1: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 01, set data: BB, and press the PAUSE button of the adjusting remote commander.
(The F No. standard data input is performed and the standard data is stored in page: F, addresses: 29 to 2C)
3) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

7. Mechanical Shutter Adjustment (FD88)

Adjust the period which the mechanical shutter is closed, and compensate the exposure.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	5A, 6C to 7F

Note 1: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 01, set data: AD, and press the PAUSE button of the adjusting remote commander.
(The mechanical shutter adjustment is performed and the adjustment data is stored in page: F, address: 5A and 6C to 7F)
3) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

8. Light Level Adjustment

Adjust the standard LV value.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	26, 28

Note 1: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 10, and set data: 58.
3) Select page: 6, address: 01, set data: 0D, and press the PAUSE button of the adjusting remote commander.
(The light level adjustment is performed and the adjustment data is stored in page: F, addresses: 26 and 28)
4) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 10, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

9. Auto White Balance Standard Data Input

Adjust the white balance standard data at 3200K.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3A to 3D

Note 1: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 58.
4) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
5) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjusting remote commander.
6) Select page: 6, address: 01, set data: 0B, and press the PAUSE button of the adjusting remote commander.
   (The auto white balance standard data input is performed and the standard data is stored in page: F, addresses: 3A to 3D)
7) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 10, and set data: 00.
3) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.
6) Perform “Auto White Balance Adjustment”. (FD83)
   Perform “Auto White Balance ND Filter Compensation”. (FD88)

10. White Balance ND Filter Compensation (FD88)

Adjust to compensate the white balance at ND filter ON.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	4F, 50

Note 1: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 58.
4) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
5) Select page: 6, address: 1C, and set data: 03.
6) Wait for 1 second.
7) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjusting remote commander.
8) Select page: 6, address: 01, set data: 09, and press the PAUSE button of the adjusting remote commander.
   (The white balance ND filter compensation is performed and the compensation data is stored in page: F, addresses: 4F and 50)
9) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

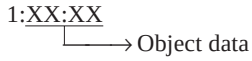
1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 1C, and set data: 00.
3) Select page: 6, address: 10, and set data: 00.
4) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.
7) Perform “Auto White Balance Adjustment”.

11. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Displayed data of page: 1 (Note 4)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	3F, 40
Specified Value	R ratio: 2A40 to 2AC0 B ratio: 5E00 to 5F00

Note 1: Perform "Auto White Balance Reference Data Input" before this adjustment.
Note 2: Perform "Auto White Balance ND Filter Adjustment" before this adjustment. (FD88)
Note 3: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.
Note 4: The right four digits of the page: 1displayed data of the adjusting remote commander.



Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 10, and set data: 58.
5) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
6) Select page: F, addresses: 49 to 4C, and noting down the data of each address.
   Write data in page: F, address: 49 to 4C as shown in the following table.

Address	Data
49	2A
4A	80
4B	5E
4C	80

7) Select page: 6, address: 01, set data: A7, and press the PAUSE button of the adjusting remote commander.
8) Select page: 6, address: 01, set data: A5, and press the PAUSE button of the adjusting remote commander.
   (The auto white balance adjustment is performed and the adjustment data is stored in page: F, addresses: 3F and 40.)
9) Select page: 6, address: 02, and check that the data is "01".
10) Select page: 6, address: 01, set data: 3F, and press the PAUSE button of the adjusting remote commander.
11) Select page: 0, address: 03, and set data: 04.
12) Check the page: 1 displayed data is the R ratio specified value.
13) Select page: 0, address: 03, and set data: 05.
14) Check the page: 1 displayed data (Note 4) is the B ratio specified value.
15) Select page: F, address: 49 to 4C, and input the data noted down at step 5).

Processing after Completing Adjustments:

1) Select page: 0, address: 03, and set data: 00.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 00.
4) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: E, address: 52, set data noted down at step 3) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

12. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	41 to 48, 5C to 5F

Note 1: Perform "Auto White Balance Reference Data Input" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 59.
4) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
5) Select page: 6, address: 01, set data: AB and press the PAUSE button of the adjusting remote commander.
6) Select page: 6, address: 01, set data: A9, and press the PAUSE button of the adjusting remote commander.
   (The color reproduction adjustment is performed and the adjustment data is stored in page: F, addresses: 41 to 48, 5C to 5F)
7) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 10, and set data: 00.
3) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.

13. Color Reproduction Adjustment (ND Filter ON) (FD88)

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	51 to 58, 60 to 63

Note 1: Perform "Auto White Balance Reference Data Input" and "White Balance ND Filter Compensation" before this adjustment.

Note 2: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 59.
4) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
5) Select page: 6, address: 1C, set data: 03, and press the PAUSE button of the adjusting remote commander.
6) Wait for 1 second.
7) Select page: 6, address: 01, set data: A3, and press the PAUSE button of the adjusting remote commander.
8) Select page: 6, address: 01, set data: A1, and press the PAUSE button of the adjusting remote commander.
   (The color reproduction adjustment (ND filter ON) is performed and the adjustment data is stored in page: F, addresses: 51 to 58, 60 to 63)
9) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 1C, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 00.
4) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

14. Color Reproduction Check (FD83)

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Vectorscope
Specified Value	All color luminance points should settle within each color reproduction frame.

Checking method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 10, and set data: 59.
5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button of the adjusting remote commander.
6) Check the each color luminance point in each color reproduction frame.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 10, and set data: 00.
3) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.

For NTSC

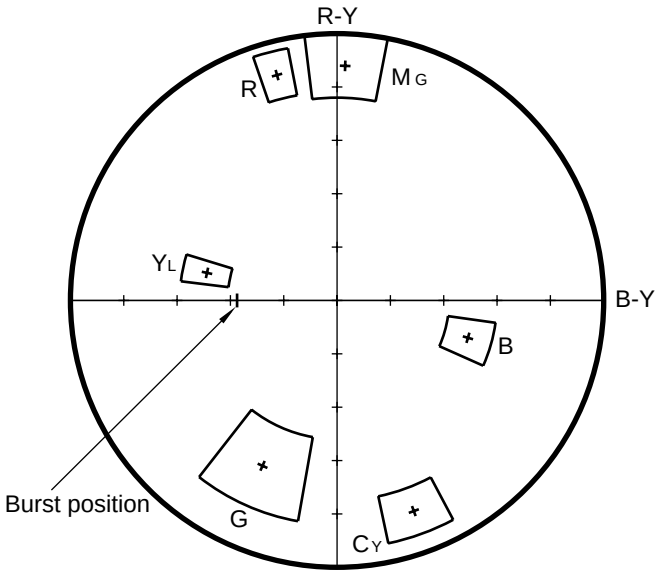


Fig. 5-1-16

For PAL

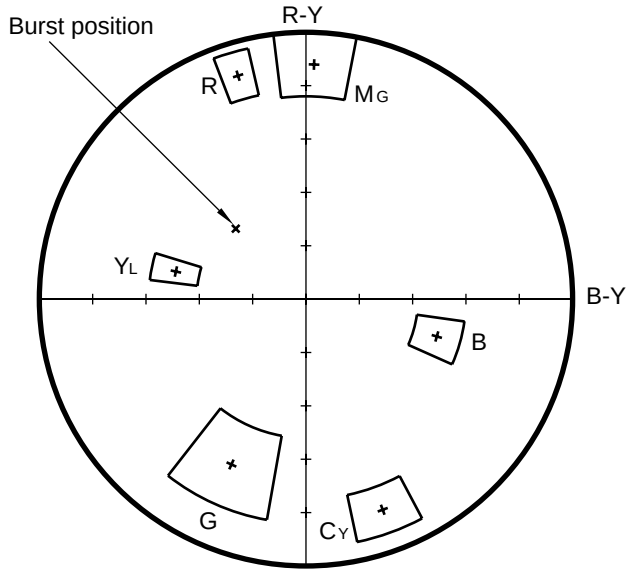


Fig. 5-1-17

15. Color Reproduction Check (FD88)

Mode	STILL
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Vectorscope
Specified Value	All color luminance points should settle within each color reproduction frame.

Checking method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 10, and set data: 59.
5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button of the adjusting remote commander.
6) Check the each color luminance point in each color reproduction frame.
7) Select page: 6, address: 1C, set data: 03, and press the PAUSE button of the adjusting remote commander.
8) Wait for 1 second.
9) Check the each color luminance point in each color reproduction frame.

Processing after Completing Adjustments:

1) Select page: 6, address: 1C, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 00.
4) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

For NTSC

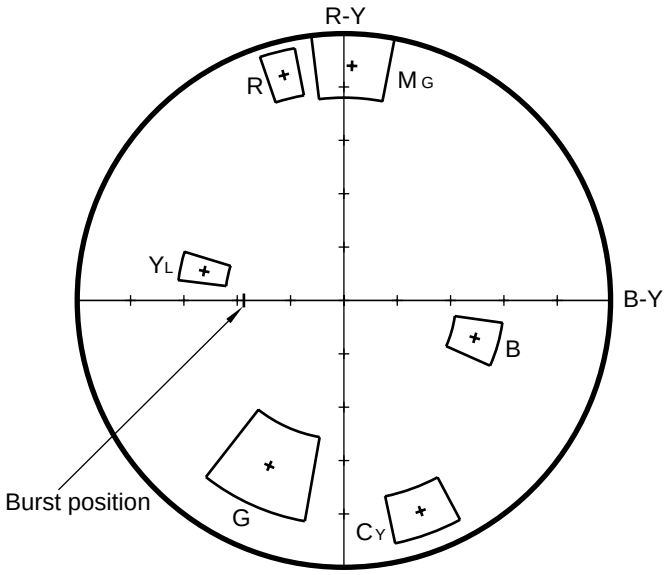


Fig. 5-1-18

For PAL

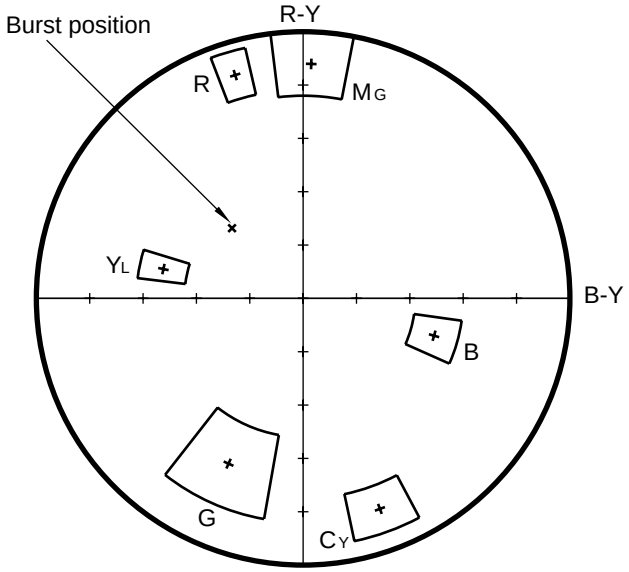


Fig. 5-1-19

16. White Balance Check (FD83)

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0, 0.4 and 0.1
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-20 (A) to (C)

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 6, address: 10, and set data: 58.
3) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
5) Check that the center of the white luminance point is within the circle shown Fig. 5-1-20 (A).
6) Select page: 6, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
7) Place the C14 filter on the lens.
8) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-20 (B).
9) Remove the C14 filter, and place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
10) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
11) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-20 (C).

Processing after Completing Adjustments:

1) Select page: 6, address: 10, and set data: 00.
2) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.

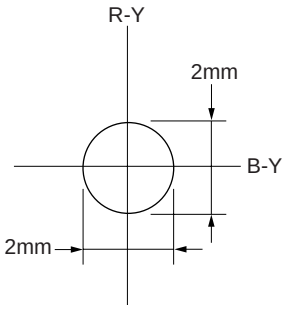


Fig. 5-1-20 (A)

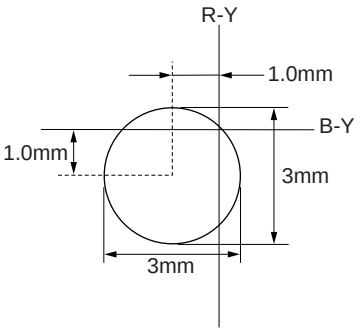


Fig. 5-1-20 (B)

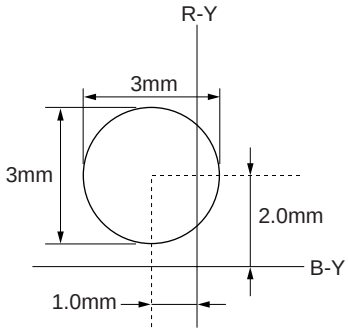


Fig. 5-1-20 (C)

17. White Balance Check (FD88)

Mode	STILL
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
	ND filter 1.0, 0.4 and 0.1
Measurement Point	Video terminal of A/V OUT jack (75 terminated)
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-20 (A) to (C)

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 6, address: 10, and set data: 58.
3) Select page: B, address: 41, set data: 30, and press the PAUSE button of the adjusting remote commander.
4) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
5) Check that the center of the white luminance point is within the circle shown Fig. 5-1-20 (A).
6) Select page: 6, address: 1C, set data: 03, and press the PAUSE button of the adjusting remote commander.
7) Wait for 1 second.
8) Check that the center of the white luminance point is within the circle shown Fig. 5-1-20 (A).
9) Select page: 6, address: 1C, set data: 00, and press the PAUSE button of the adjusting remote commander.
10) Select page: 6, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
11) Place the C14 filter on the lens.
12) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-20 (B).
13) Remove the C14 filter, and place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
14) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
15) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-20 (C).
16) Select page: 6, address: 1C, set data: 00, and press the PAUSE button of the adjusting remote commander.
17) Place the C14 filter on the lens.
18) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-20 (B).
19) Remove the C14 filter, and place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
20) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
21) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-20 (C).

Processing after Completing Adjustments:

1) Select page: 6, address: 10, and set data: 00.
2) Select page: B, address: 41, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.

18. Strobe White Balance Adjustment

Adjust the white balance when the strobe light flashed.

Mode	STILL
Subject	Flash adjustment box (Note 5) (1.0 m from the front of lens)
Adjustment Page	F
Adjustment Address	4D, 4E, 68, 69, 6A, 6B

Note 1: Perform "HALL Adjustment", "Flange Back Adjustment", "Light Level Adjustment" and "Auto White Balance Adjustment" before this adjustment.
Note 2: Perform this adjustment in the Flash adjustment box.
Note 3: Any light other than the strobe light should not light up the plate.
Note 4: Check that the data of page: 6, address: 02 is "00". If not, turn the power of unit OFF/ON.
Note 5: Refer to "4. Preparing the Flash Adjustment Box" (See page 5-8).

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 58.
4) Select page: 6, address: 90, and set data: 00.
5) Select page: 6, address: 91, and set data: 00.
6) Select page: 6, address: 92, and set data: 00.
7) Select page: 6, address: 93, and set data: 60.
8) Select page: 6, address: 2C, and set data: 01.
9) Select page: 6, address: 01, set data: 79, and press the PAUSE button of the adjusting remote commander.
10) Select page: 6, address: 01, set data: B9, and press the PAUSE button of the adjusting remote commander.
(The strobe white balance adjustment is performed and the adjustment data is stored in page: F, address: 4D, 4E, 68, 69, 6A and 6B)
11) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 2C, and set data: 00.
3) Select page: 6, address: 93, and set data: 00.
4) Select page: 6, address: 10, and set data: 00.
5) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

19. Strobe Light Level and White Balance Check

Check the light level regulation and the white balance when the strobe light flashed.

Mode	STILL
Subject	A plate which reflection rate is 18% (1.0 m from the front of lens)
Measurement Point	Displayed data of page: 1
Measuring Instrument	Adjusting remote commander
Specified Value	Y level data: 68 to A0 (Note 3) R-Y level data: FA to FF or 00 to 06 (Note 4) B-Y level data: FA to FF or 00 to 06 (Note 4)

Note 1: Perform this adjustment in the dark room or use a dark box.

Note 2: Any light other than the strobe light should not light up the plate.

Note 3: The right two digits of the page: 1displayed data of the adjusting remote commander

1:00:XX → Y level data

Note 4: The right four digits of the page: 1displayed data of the adjusting remote commander

1:XX:XX → B-Y level data, → R-Y level data

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 52, after noting down the data, set data: 1B, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 10, and set data: 58.
4) Select page: 6, address: 90, and set data: 00.
5) Select page: 6, address: 91 and set data: 00.
6) Select page: 6, address: 92, and set data: 00.
7) Select page: 6, address: 93, and set data: 60.
8) Select page: 6, address: 2C, and set data: 01.
9) Select page: 6, address: 01, set data: 79, and press the PAUSE button of the adjusting remote commander.
10) Select page: 6, address: 01, set data: 67, and press the PAUSE button of the adjusting remote commander.
11) Check the flashing of strobe light.
12) Select page: 0, address: 03, and set data: 01.
13) Select page: 1, and check the Y level (Note 3) data satisfies the specified value.
14) Select page: 0, address: 03, and set data: 02.
15) Select page: 1, and check the R-Y, B-Y level data (Note 4) satisfies the specified value.

Processing after Completing Adjustments:

1) Select page: 0, address: 03, and set data: 00.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 6, address: 2C, and set data: 00.
4) Select page: 6, address: 93, and set data: 00.
5) Select page: 6, address: 10, and set data: 00.
6) Select page: E, address: 52, set data noted down at step 2) and press the PAUSE button of the adjusting remote commander.
7) Select page: 0, address: 01, and set data: 00.

20. CCD Black Defect Compensation

Mode	STILL
Subject	Clear chart
	(25 cm from the front of lens)
Measurement Point	Displayed data of page: 1, address: 55
Measuring Instrument	Adjusting remote commander
Adjustment Page	B
Adjustment Address	88 to AF
Specified Value	0A or less

Note 1: Check that there are no dust, no dirt and reflection of the clear chart.

Note 2: Any subject other than the clear chart should be in the screen.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, addresses: 88 to AF, and input data: FF to each address.
   Note: Press the PAUSE button of the adjusting remote commander each time to set data.
3) Select page: E, address: 52, after noting down the data, set data: 50, and press the PAUSE button of the adjusting remote commander.
4) Select page: F, address: AF, set data: B3, and press the PAUSE button of adjusting remote commander.
5) Select page: 6, address: 2C, and set data: 01.
6) Select page: 6, address: 90, and set data: 00.
7) Select page: 6, address: 91, and set data: 04.
8) Select page: 6, address: 92, and set data: 00.
9) Select page: 6, address: 93, and set data: 00.
10) Select page: 6, address: 01, set data: 79, and press the PAUSE button of adjusting remote commander.
11) Select page: 6, address: 30, and set data: 07.
12) Wait for 2 second.
13) Select page: 6, address: 01, set data: 8D, and press the PAUSE button of adjusting remote commander.
    (The CCD defect compensation is performed and the compensation data is stored in page: B, address: 88 to AF)
14) Select page: 6, address: 02, and check that the data is “01”.
15) Select page: 6, address: 55, and check that the black defection data is satisfies the specified value.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of adjusting remote commander.
2) Select page: 6, address: 91, and set data: 00.
3) Select page: 6, address: 2C, and set data: 00.
4) Select page: 6, address: 30, and set data: 00.
5) Select page: E, address: 52, set data noted down at step 3) and press the PAUSE button of the adjusting remote commander.
6) Select page: 0, address: 01, and set data: 00.

21. CCD Black Defect Compensation Check

Mode	STILL
Subject	Clear chart (25 cm from the front of lens)
Measurement Point	Displayed data of page: 6, address: 55
Measuring Instrument	Adjusting remote commander
Specified Value	00

Note 1: Check that there are no dust, no dirt and reflection of the clear chart.
Note 2: Any subject other than the clear chart should be in the screen.
Note 3: Perform "CCD Black Defect Compensation" before this checking.

Checking method:
1) Turn the power of the unit OFF and then ON.
2) Wait until the camera picture appear on the LCD screen.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: E, address: 52, after noting down the data, set data: 50, and press the PAUSE button of the adjusting remote commander.
5) Select page: F, address: AF, set data: A5, and press the PAUSE button of adjusting remote commander.
6) Select page: 6, address: 2C, and set data: 01.
7) Select page: 6, address: 90, and set data: 00.
8) Select page: 6, address: 91, and set data: 04.
9) Select page: 6, address: 92, and set data: 00.
10) Select page: 6, address: 93, and set data: 00.
11) Select page: 6, address: 01, set data: 79, and press the PAUSE button of adjusting remote commander.
12) Select page: 6, address: 30, and set data: 07.
13) Select page: 6, address: 01, set data: 89, and press the PAUSE button of adjusting remote commander.
14) Select page: 6, address: 02, and check that the data is "01".
15) Select page: 6, address: 55, and check that the data is "00". (If the data other than "00", black defect compensation has errors)

Processing after Completing Adjustments:
1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of adjusting remote commander.
2) Select page: 6, address: 30, and set data: 00.
3) Select page: 6, address: 91, and set data: 00.
4) Select page: 6, address: 2C, and set data: 00.
5) Select page: F, address: AF, set data: B3, and press the PAUSE button of adjusting remote commander.
6) Select page: E, address: 52, set data noted down at step 4) and press the PAUSE button of the adjusting remote commander.
7) Select page: 0, address: 01, and set data: 00.

22. CCD White Defect Compensation Check

Mode	STILL
Subject	Not required
Measurement Point	Displayed data of page: 6, address: 55
Measuring Instrument	Adjusting remote commander
Specified Value	07 or less

Note 1: Perform "CCD Black Defect Compensation" before this checking.

Checking method:
1) Turn the power of the unit OFF and then ON.
2) Wait until the camera picture appear on the LCD screen.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: F, address: B3, set data: 80, and press the PAUSE button of adjusting remote commander.
5) Turn the power of the unit OFF.
6) Wait for 2 second.
7) Turn the power of the unit ON.
8) Select page: 6, address: 55, and check that the white defection data is satisfies the specified value.
9) Select page: F, address: B3, set data: A0, and press the PAUSE button of adjusting remote commander.
10) Select page: 6, address: 01, set data: 87, and press the PAUSE button of adjusting remote commander.
11) Select page: 6, address: 02, and check that the data is "01".
12) Select page: 6, address: 55, and check that the data is "00". (If the data other than "00", white defect compensation has errors)

Processing after Completing Adjustments:
1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of adjusting remote commander.
2) Select page: F, address: B3, set data: 20, and press the PAUSE button of adjusting remote commander.
3) Select page: 0, address: 01, and set data: 00.

1-5. LCD SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.

Note 1: The back light (fluorescent tube) is driven with high voltage AC power. Therefore, do not touch the back light directly, otherwise you will feel an electric shock.

Note 2: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 3: Adjust the brightness to the center with the BRIGHT +/- buttons.

[Adjusting connector]

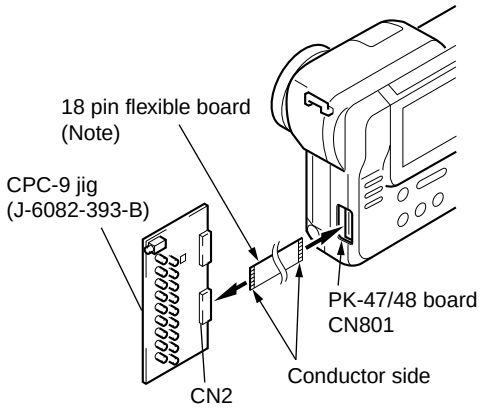
Most of the measuring points for adjusting the LCD system are concentrated in CN801 of the PK-47/48 board.

Connect the Measuring Instruments via the CPC-9 jig (J-6082-393-B).

The following table shows the Pin No. and signal name of CN801.

Pin No.	Signal Name	Pin No.	Signal Name
1	MC PA05	10	UNREG
2	C OUT	11	LANC IN
3	Y OUT	12	LANC OUT
4	REG GND	13	XPOWER SW
5	N.C.	14	MAKER RECOG
6	SYS V	15	INDEX
7	HSY	16	TRACK 00
8	COM	17	FDD RFB
9	VG	18	FDD RFA

Table 5-1-7



Note: Don't use the 12 pin flexible board of CPC-9 jig. It causes damage to the unit.

Fig. 5-1-21

1. LCD Initial Data Input

Mode	PLAY
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	80 to 89, 8C to 8F

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, and enter the data given in the following table.

Note: Press the PAUSE button of the adjusting remote commander each time the data are set, as the data are written to non-volatile memory (EEPROM).

Address	Data		Remark
	FD83	FD88	
80	BB	BC	Bright Adjustment
81	6F	80	Color Adjustment
82	77	B9	White Balance Adjustment
83	7A	B7	
84	DB	BE	Contrast Adjustment
85	78	C8	D Range Adjustment
86	70	7C	V-COM Level Adjustment
87	6F	50	VCO Adjutment (NTSC)
88	97	74	V-COM Adjustment
89	51	72	Fixed value
8C	9A	9A	
8D	6F	50	VCO Adjutment (PAL)
8E	13	13	Fixed value
8F	00	00	

Processing after Completing Adjustments:
1) Select page: 0, address: 01, and set data: 00.

2. VCO Adjustment (NTSC) (PK-47/48 Board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin (7) of CN801 (HSY)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	87
Specified Value	f = 15734 ± 30 Hz

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 5, address: F0, and set data: 01.
3) Select page: D, address: 87, change the data and set the frequency (f) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:
1) Select page: 5, address: F0, and set data: 00.
2) Select page: 0, address: 01, and set data: 00.

3. VCO Adjustment (PAL) (PK-47/48 Board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	PLAY
Signal	Arbitrary
Measurement Point	Pin (7) of CN801 (HSY)
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	8D
Specified Value	f = 16175 ± 30 Hz (FD83) f = 15625 ± 30 Hz (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: C3, set data: 05, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 01, and set data: 00.
4) Turn the power of unit OFF and then ON.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: 5, address: F0, and set data: 01.
7) Select page: D, address: 8D change the data and set the frequency (f) to the specified value.
8) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F0, and set data: 00.
2) Select page: D, address: C3, set data: 00 (NTSC model) or data: 04 (PAL model), and press the PAUSE button of the adjusting remote commander
3) Select page: 0, address: 01, and set data: 00.

4. D Range Adjustment (PK-47/48 Board)

Set the D range of the LCD driver to the specified value.
If deviated, the LCD screen will became blackish or saturated (whitish)

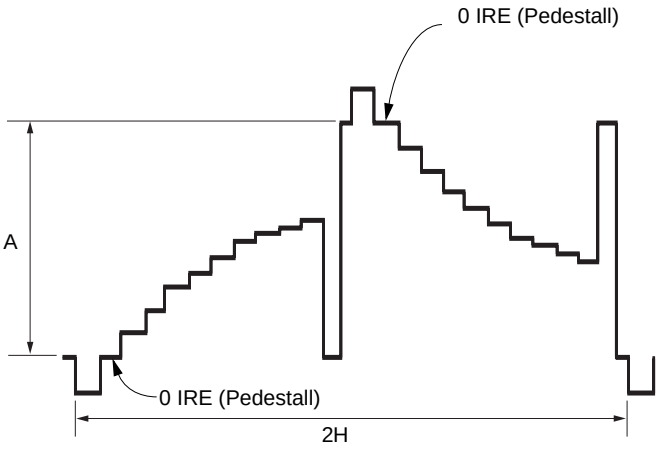
Mode	PLAY
Signal	Stair-step signal of 10 steps (non burst) (Test signal)
Measurement Point	Pin (9) of CN801 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	85
Specified Value	A = 3.20 ± 0.05 Vp-p (FD83) A = 3.62 ± 0.05 Vp-p (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 03.
4) Select page: D, address: 85, change the data and set the voltage (A) to the specified value.
5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 06, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.



A: Pedestal level difference between 1H period and previous 1H period.

Fig. 5-1-22

5. Bright Adjustment (PK-47/48 Board)

Set the level of the VIDEO signal for driving the LCD to the specified value.
If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Stair-step signal of 10 steps (non burst) (Test signal)
Measurement Point	Pin (9) of CN801 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	80
Specified Value	A = 1.80 ± 0.05 Vp-p (FD83) A = 1.81 ± 0.05 Vp-p (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 2, address: 10, and set data: 01.
4) Select page: 5, address: F1, and set data: 03.
5) Select page: D, address: 80, change the data and set the voltage (A) between the pedestal and white level to the specified value.
6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 10, and set data: 00.
3) Select page: 2, address: 06, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.

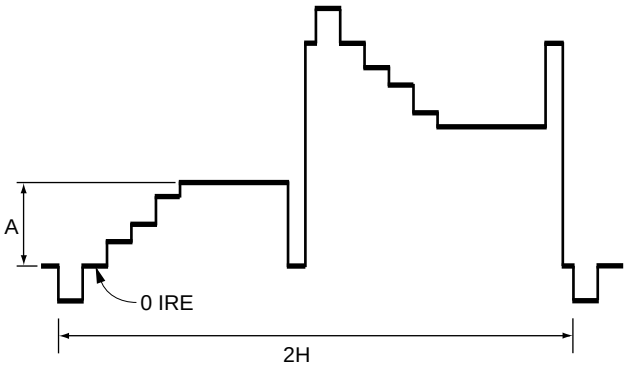


Fig. 5-1-23

6. Contrast Adjustment (PK-47/48 Board)

Set the level of the VIDEO signal for driving the LCD to the specified value.
If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	PLAY
Signal	Stair-step signal of 10 steps (non burst) (Test signal)
Measurement Point	Pin (9) of CN801 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	84
Specified Value	A = 2.90 ± 0.07 Vp-p (FD83) A = 3.17 ± 0.07 Vp-p (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 03.
4) Select page: D, address: 84, change the data and set the voltage (A) between the 0 IRE (pedestal) and 100 IRE to the specified value.
5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 06, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

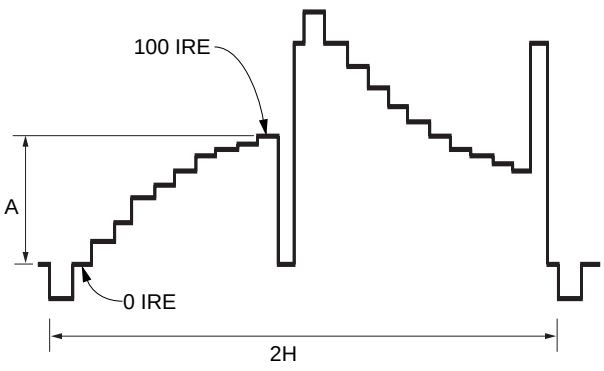


Fig. 5-1-24

7. Color Adjustment (PK-47/48 Board)

Set the color saturation to the standard value.
If, deviated, the color will be dark or light.

Mode	PLAY
Signal	Color bar (Test signal)
Measurement Point	Pin (9) of CN801 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	81
Specified Value	A = 490 ± 50 mVp-p (FD83) A = 540 ± 50 mVp-p (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 04.
4) Select page: D, address: 81, change the data and set the voltage (A) between the white and green to the specified value.
5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 06, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

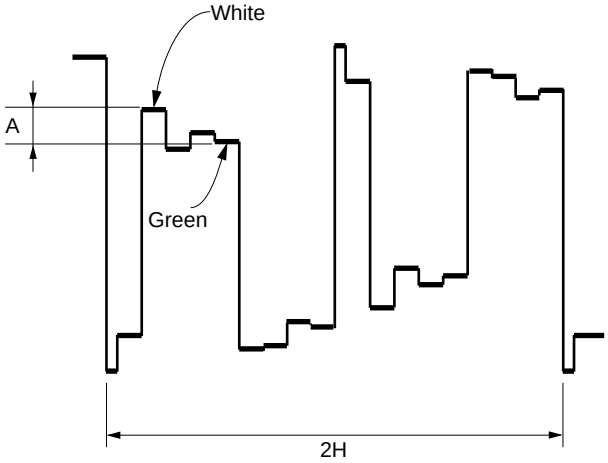


Fig. 5-1-25

8. V-COM Level Adjustment (PK-47/48 Board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	PLAY
Signal	Stair-step signal of 10 steps (non burst) (Test signal)
Measurement Point	Pin (8) of CN801 (COM)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	86
Specified Value	A = 6.10 ± 0.05 Vp-p (FD83) A = 6.50 ± 0.05 Vp-p (FD88)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 03.
4) Select page: D, address: 86, change the data and set the V-COM signal level (A) to the specified value.
5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 06, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

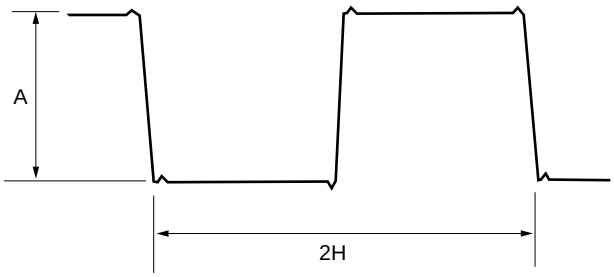


Fig. 5-1-26

9. V-COM Adjustment (PK-47/48 Board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

Mode	PLAY
Signal	V-COM adjustment signal (Test signal)
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	88

Note: Perform "Bright Adjustment" and "Contrast Adjustment" before this adjustment.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 01.
4) Select page: 2, address: 10, and set data: 02.
5) Select page: D, address: 88, change the data so that brightness of the section A and section B is equal.
6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 10, and set data: 00.
3) Select page: 2, address: 06, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.

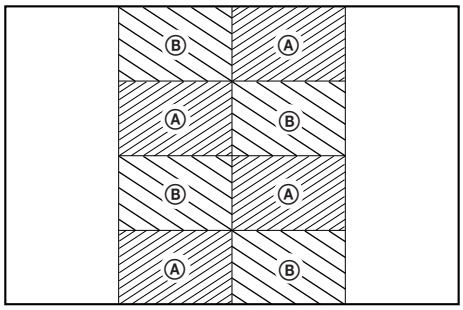


Fig. 5-1-27

10. White Balance Adjustment (PK-47/48 Board)

Correct the white balance.
If deviated, the LCD screen color cannot be reproduced.

Mode	PLAY
Signal	50 IRE (50%) white signal (Test signal)
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	D
Adjustment Address	82, 83
Specified Value	LCD screen must not be colored

Note: Check the white balance only when replacing the following parts.
If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC802

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 06, and set data: 01.
3) Select page: 5, address: F1, and set data: 02.
4) Check that the LCD screen is not colored.
   If colored, select page: D, addresses: 82 and 83.
   then change data so that the LCD screen is not colored.
5) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments:

1) Select page: 5, address: F1, and set data: 00.
2) Select page: 2, address: 06, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

1-6. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Battery Down Adjustment

Set the battery end voltage.
If the voltage is incorrect, the life of battery will shorten.
The image at the battery end will also be rough.

Mode	STILL
Subject	All black (Cover the lens with a black cap)
Measurement Point	Displayed data of page: 2, address: 51
Measuring Instrument	Adjusting remote commander
Adjustment Page	D
Adjustment Address	30 to 34

Connection:

1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-28.

Adjusting method:

1) Adjust the output voltage of the regulated power supply so that the digital volt meter display is 6.1 ± 0.1 Vdc.
2) Turn the HOLD switch of the adjusting remote commander.
3) Turn on the power.
4) Select page: 0, address: 01, and set data: 01.
5) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.80 ± 0.01 Vdc.
6) Select page: 2, address: 51, read the data, and this data is named Dref.
7) Select page: D, address: 30, set data Dref, and then press the PAUSE button of adjusting remote commander.
8) Convert Dref to decimal notation, and obtain Dref'. (Refer to Table 5-2-1. "Hexadecimal-decimal conversion table")
9) Calculate D31, D32, D33 and D34 using following equations (decimal calculation), convert it to a hexadecimal number, and input each adjustment address.

   Address: 31 D31'=Dref'+8
   Address: 32 D31'=Dref'+23
   Address: 33 D31'=Dref'+44
   Address: 34 D31'=Dref'+55

   Note: After setting each data, be sure to press the PAUSE button.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.

2. Alignment Check (FDD Unit)

Confirm that the FDD alignment is within the specifications.
If deviated, reading and writing data from and to floppy disk become impossible.
Or compatibility of floppy disk with other machines can be lost.

Mode	PLAY
Signal	Alignment disks (TFD2-1 (+)) and (TFD2-1 (-)): Arbitrary signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Specified Value	The playback pictures should be normal

Checking method:

1) Disconnect the adjusting remote commander.
2) Insert the alignment disk TFD2-1 (+) (+17.5 um).
3) Playback arbitrary signal and check that the playback picture is normal.
4) Insert the alignment disk TFD2-1 (–) (–17.5 um).
5) Playback arbitrary signal and check that the playback picture is normal.

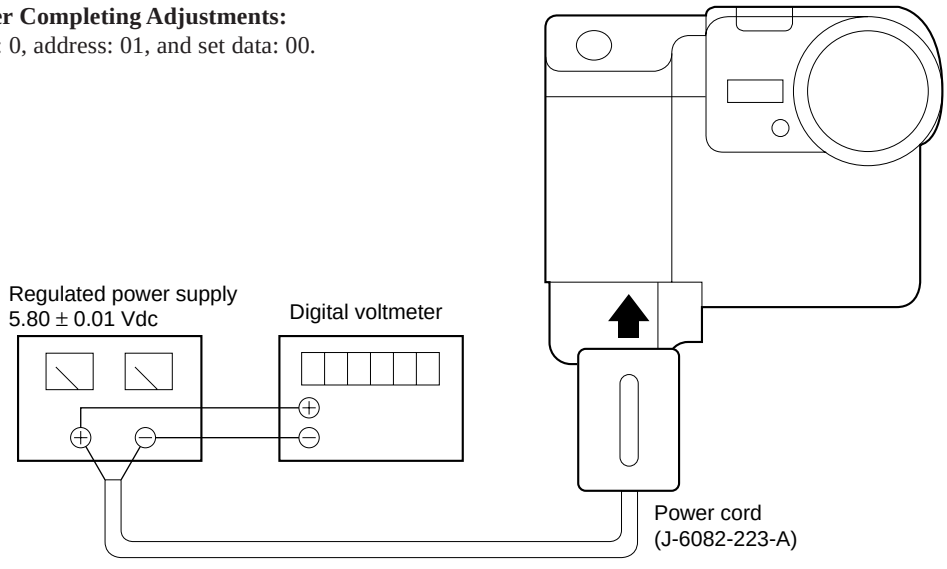


Fig. 5-1-28

5-2. SERVICE MODE

2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjusting Remote Commander

1) Connect the adjusting remote commander to the CN801 on the PK-47/48 board via CPC-9 jig (J-6082-393-B).
2) Adjust the HOLD switch of the adjusting remote commander to “HOLD” (SERVICE position).
3) Turn on the power with the POWER switch of the unit.

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

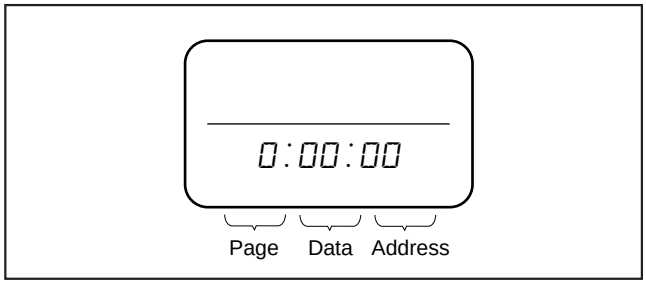


Fig. 5-2-1

4) Operate the adjusting remote commander as follows.
   • Changing the page
   The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1

   • Changing the address
   The address increases when the FF (►►) button is pressed, and decreases when the REW (◄◄) button is pressed. There are altogether 256 addresses, from 00 to FF.
   • Changing the data (Data setting)
   The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   • Writing the adjustment data
   The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed)

2. Precautions upon Using the Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

2-2. DATA PROCESS

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2. indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal nontation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (R)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (R)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : ( ) indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2

2-3. SERVICE MODE

1. Setting the Test Mode

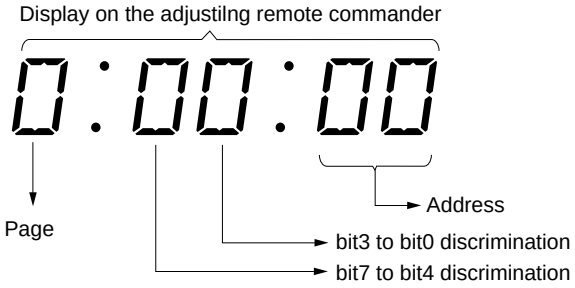
Page D	Address 10

Data	Function
00	Normal
01	Forced STILL mode power ON
02	Forced PLAY mode power ON
03	Forced MOVIE mode power ON

- Before setting the data, select page: 0, address: 01, and set data: 01.
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjusting remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, be sure to return the data of this address to "00", and press the PAUSE button of the adjusting remote commander.
  Select page: 0, address: 01, and set data: 00.

2. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for following items. Use the table below to discriminate if the bit value is "1" or "0"



	Display on the Adjusting remote commander	Bit values bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(R)	1	0	1	0
	B(b)	1	0	1	1
	C(c)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

Example: If "8E" is displayed on the adjusting remote commander, the bit values for bit7 to bit4 are shown in the Ⓐ column, and the bit values for bit3 to bit0 are shown in the Ⓑ column.

3. Switch Check (1)

Page 2	Address 43

Bit	Function	When bit value=1	When bit value=0
0	XPOWER SW (PK-47/48 board S702)	OFF	ON
1	XCAM/PLAY SW (PK-47/48 board S706)	PLAY	CAMERA
2	SHUTTR SW (RL-54/56 board S001)	OFF	ON
3	XSHUTTER LOCK SW (RL-54/56 board S001)	OFF	ON
4	FLOPPY DISK IN SW (FDD UNIT)	IN	OUT
5			
6			
7	XSTILL/MOVIE SW (PK-47/48 board S710)	MOVIE	STILL

Using method:

1) Select page: 2, address: 43
2) By discriminating the bit value of dispaly data, the state of the switches can be discriminated.

4. Switch Check (2)

Page 2	Address 54 to 58

Using method:

1) Select page: 2, addresses: 54 to 58.
2) By discriminating the dispaly data, the pressed key can be discriminated.

Address	Data						
	00 to 13	14 to 3A	3B to 63	64 to 90	91 to BC	BD to E8	E9 to FF
54 (KEY AD0) (IC303 ⑱)	VOLUME+ (PK-47/48 board) (S705)	VOLUME – (PK-47/48 board) (S707)					
55 (KEY AD1) (IC303 ⑲)	CONTROL DOWN (PK-47/48 board) (S701)	CONTROL UP (PK-47/48 board) (S701)	DISPLAY (PK-47/48 board) (S704)	BRIGHT+ (PK-47/48 board) (S711)	BRIGHT– (PK-47/48 board) (S712)		
56 (KEY AD2) (IC303 ⑳)	CONTROL RIGHT (PK-47/48 board) (S701)	CONTROL LEFT (PK-47/48 board) (S701)	CONTROL SET (PK-47/48 board) (S701)	FLASH (PK-47/48 board) (S708)		LCD BACKLIGHT OFF (PK-47/48 board) (S713)	LCD BACKLIGHT ON (PK-47/48 board) (S713)
57 (KEY AD3) (IC303 ㉑)				PICTURE EFFECT (PK-47/48 board) (S703)	PROGRAM AE (PK-47/48 board) (S709)		
58 (KEY AD4) (IC303 ㉒)						FOCUS MANUAL (MF UNIT)	FOCUS AUTO (MF UNIT)

5. Self Diagnosis Code

Display Code	Countermeasure	Cause	Caution Display During Error
C:32:01	Change the disk and turn off the main power then back on.	Defective floppy disk.	DRIVE ERROR
C:13:01	Replace the floppy disk. Format the floppy disk with the MVC-FD83/FD88.	• The type of floppy disk that cannot be used by this machine, is inserted. (Such as 2DD) • Data is damaged. • Unformatted disk is inserted.	DISK ERROR
E:91:01	Repair by service engineers only.	*2 Abnormality when flash is being charged.	Flash LED Flash display Flashing at 3.2 Hz
*1 C:63:00 E:61:00		When failed in the focus initialization.	—
*1 C:63:10 E:61:10		When failed in the zoom initialization.	

Note : The error code is cleared if the battery is removed, except defective flash.

*1 : The error display is given in two ways.

*2 : When the flash charging failed, Page:D, Address:C7, Data:04 are written. After repair, be sure to write Page:D, Address:C7, Data:00.

[Power supplying Method]

Use the AC power adaptor (BC-V615) when supplying the power to this set.

SECTION 6
REPAIR PARTS LIST

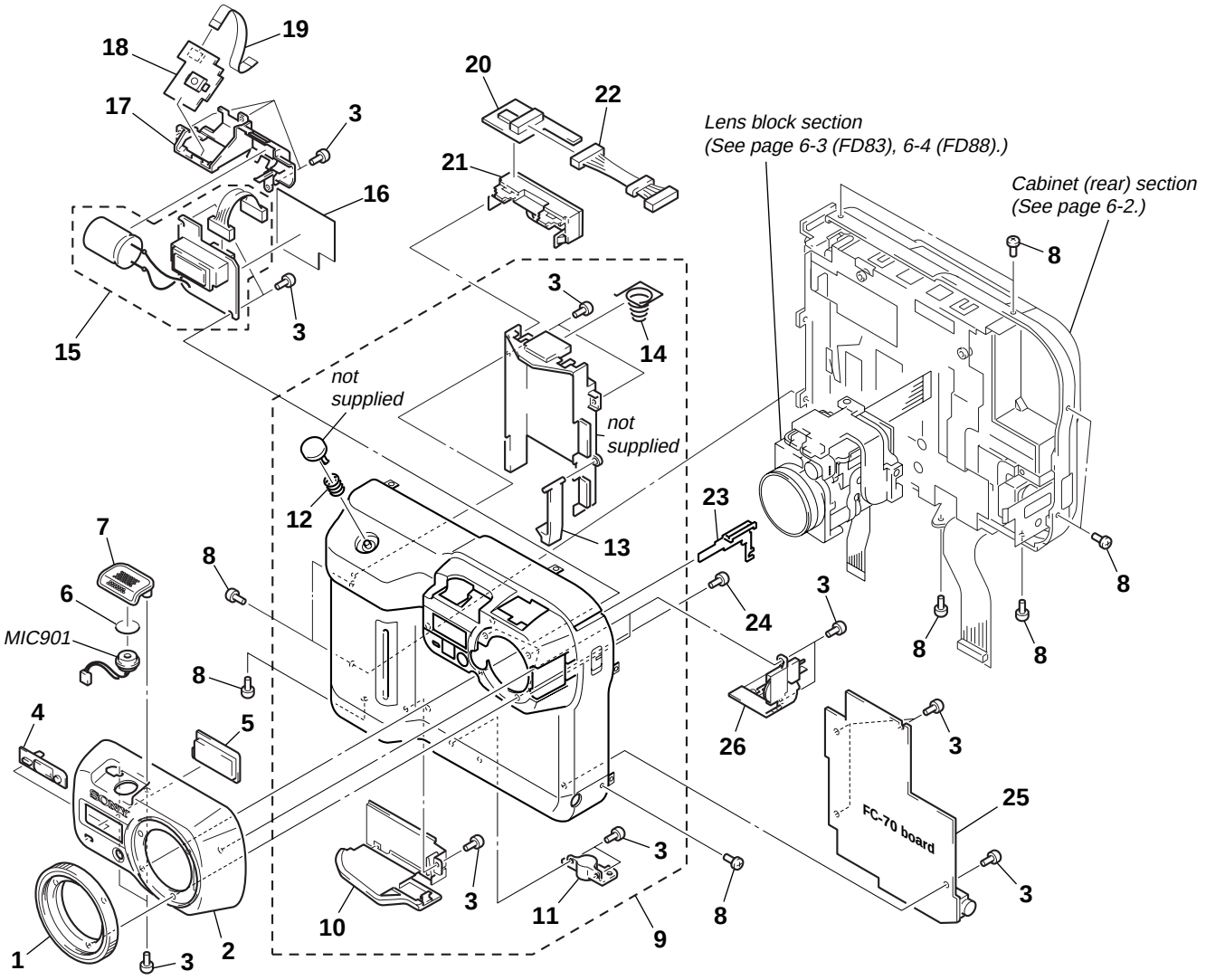
6-1. EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

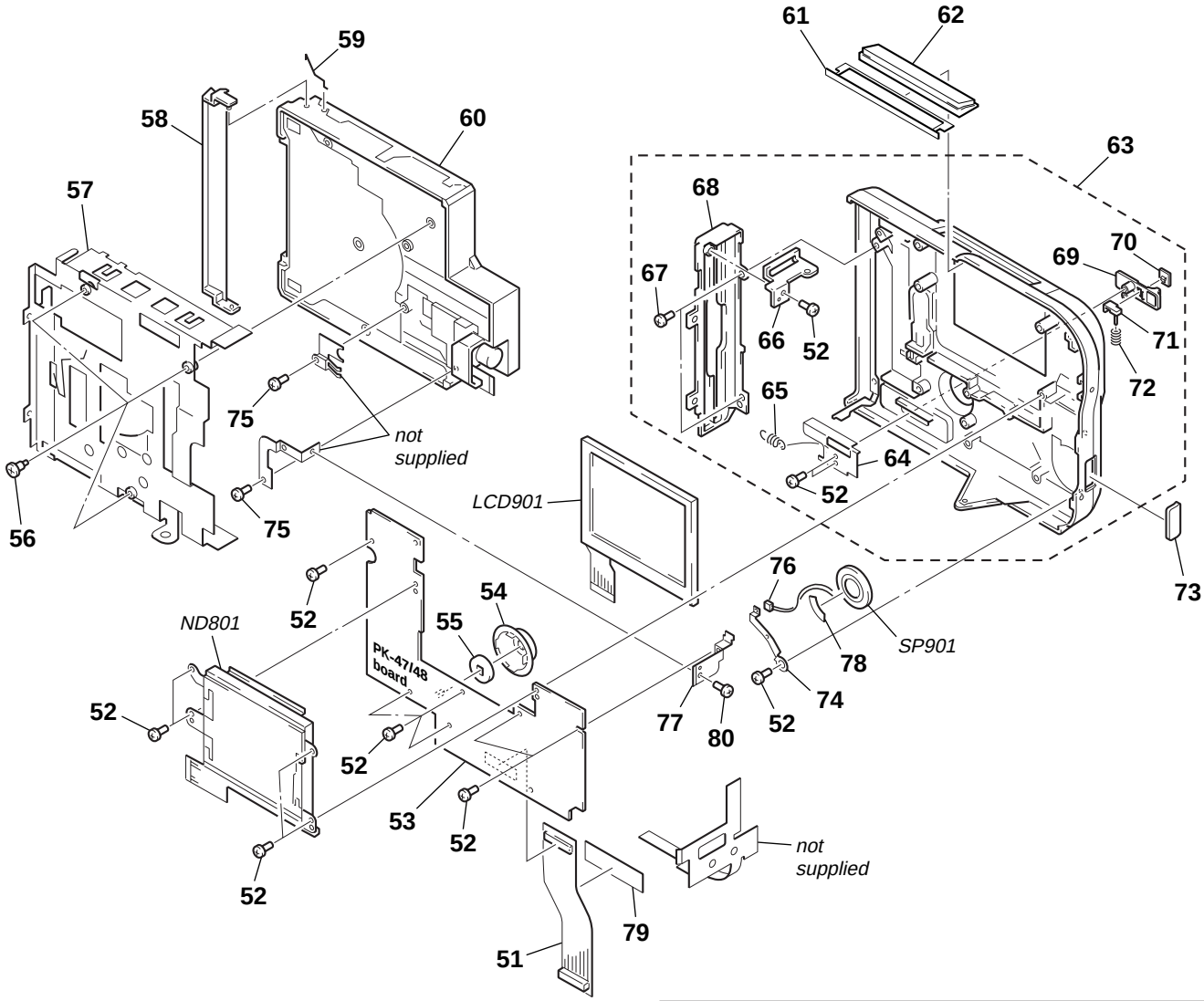
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. CABINET (FRONT) SECTION



Ref. No.	Part No.	Description	Remark
1	X-3949-798-1	MF RING (88) ASSY (FD88)	
1	X-3949-799-1	MF RING (83) ASSY (FD83)	
2	X-3949-713-1	COVER (LENS) ASSY (FD88)	
2	X-3949-718-1	LENS ASSY, COVER (FD83)	
3	3-948-339-61	TAPPING	
4	3-055-930-01	PLATE (T), TRANSPARENT	
5	3-055-929-01	PLATE (S), TRANSPARENT	
* 6	3-055-971-01	CUSHION, MICROPHONE	
7	X-3949-714-1	GRILLE ASSY, MICROPHONE (FD88)	
7	X-3949-732-1	GRILLE ASSY, MICROPHONE (FD83)	
8	3-056-233-01	ACE (M2), 0 PLATE +P2 MAIN LOCK	
9	X-3949-712-1	CABINET (FRONT) ASSY (FD88)	
9	X-3949-717-1	CABINET (FRONT) ASSY (FD83)	
10	X-3949-800-1	LID ASSY, BATTERY	
11	3-050-468-01	SCREW, TRIPOD	
* 12	3-977-653-01	SPRING, COMPRESSION	
13	3-052-574-01	CLAW, BT LOCK	
14	3-969-380-01	SPRING, BATTERY	
⚠15	1-517-893-11	FLASH UNIT	
* 16	3-056-046-01	INSULATING SHEET (ST)	
* 17	3-055-928-01	HOLDER (RELEASE)	
18	A-7074-008-A	RL-56 BOARD, COMPLETE (FD88)	
18	A-7074-014-A	RL-54 BOARD, COMPLETE (FD83)	
19	1-790-874-11	CABLE, FLEXIBLE FLAT (FFC-281)	
20	A-7074-009-A	FU-137 BOARD, COMPLETE (FD88)	
20	A-7074-015-A	FU-135 BOARD, COMPLETE (FD83)	
21	1-694-554-11	TERMINAL BOARD, BATTERY	
22	1-959-764-21	HARNESS (FF-199)	
23	3-055-926-01	SHEET METAL (L), STRAP	
24	3-713-791-31	SCREW (M1.7X6), TAPPING, P2	
25	A-7074-042-A	FC-70 BOARD, COMPLETE (SERVICE) (FD88)	
25	A-7074-043-A	FC-70 BOARD, COMPLETE (SERVICE) (FD83)	
26	1-418-425-11	MF BLOCK	
MIC901	1-542-312-11	MICROPHONE	

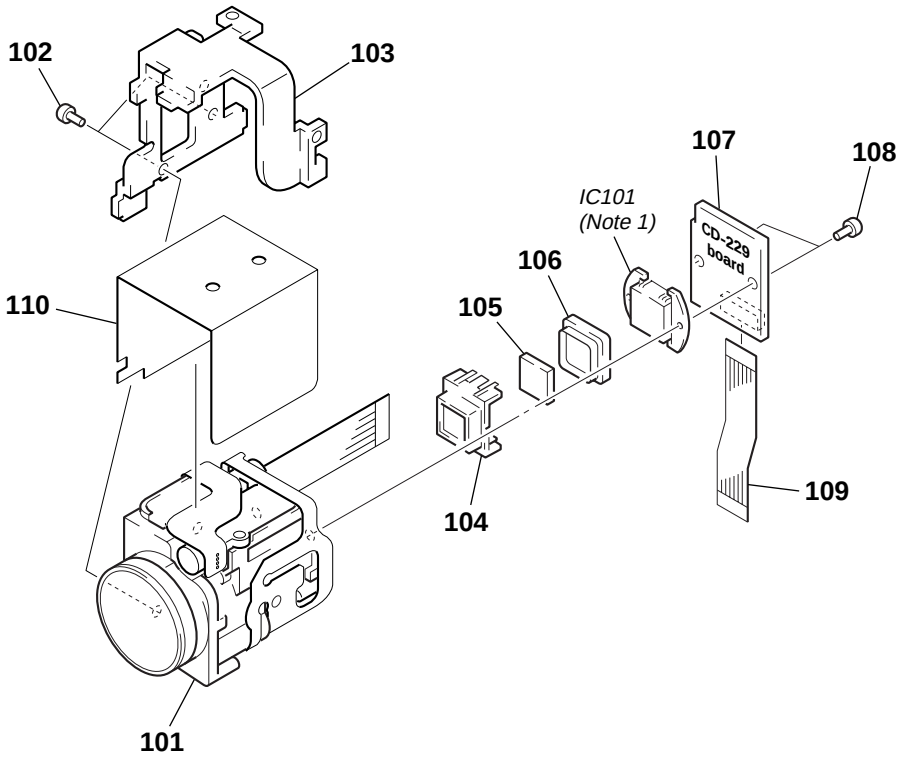
6-1-2. CABINET (REAR) SECTION



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	1-674-162-21	FP-116 (PK-FC) FLEXIBLE BOARD	
52	3-948-339-61	TAPPING	
53	A-7074-010-A	PK-48 BOARD, COMPLETE (SHARP) (FD88)	
53	A-7074-017-A	PK-47 BOARD, COMPLETE (CASIO) (FD83)	
54	3-978-439-11	BUTTON, CONTROL	
* 55	3-979-292-01	SHEET (CONTROL)	
56	3-352-483-01	SCREW (M2), STEP	
* 57	X-3949-716-1	FRAME ASSY, MAIN	
58	3-050-457-01	LID,SIDE	
59	3-050-458-01	SPRING (UPPER), SIDE	
60	1-772-046-11	DRIVE, FLOPPY DISK (3.5inch)	
* 61	3-056-012-01	RETAINER (190), WINDOW	
62	3-052-592-01	WINDOW, LCD	
63	X-3949-715-1	CABINET (REAR) ASSY	
64	3-052-955-01	SHEET METAL, EJECT	
65	3-052-537-01	SPRING, EXTENSION	
66	3-052-531-01	SHEET METAL (R), STRAP	
67	3-713-791-01	SCREW (M1.7X5), TAPPING, P2	
68	3-052-530-01	CABINET, SIDE	
69	3-055-955-01	KNOB, EJECT	
70	3-052-956-01	LOCK, EJECT	
71	3-052-957-01	SLIDER, EJECT	
72	3-052-958-01	SPRING, COMPRESSION	
73	3-055-923-01	COVER, CPC	
* 74	3-055-933-01	RETAINER, SPEAKER	
75	3-713-786-21	SCREW (M2X3)	
76	1-959-765-11	HARNESS (SP-161)	
* 77	3-055-934-01	PLATE (FD), GROUND	
* 78	3-056-047-01	INSULATED PLATE, SP	
* 79	3-056-789-01	SHEET, FP	
80	3-056-483-01	SCREW (M1.7), LOCK ACE, P2	
LCD901	1-803-357-21	MODULE, CRYSTAL INDICATION (SHARP)	(FD88)
LCD901	1-803-358-21	MODULE, CRYSTAL INDICATION (CASIO)	(FD83)
⚠ND801	1-517-787-11	TUBE, FLUORESCENT, COLD CATHODE	
SP901	1-529-174-11	SPEAKER (2.0cm)	

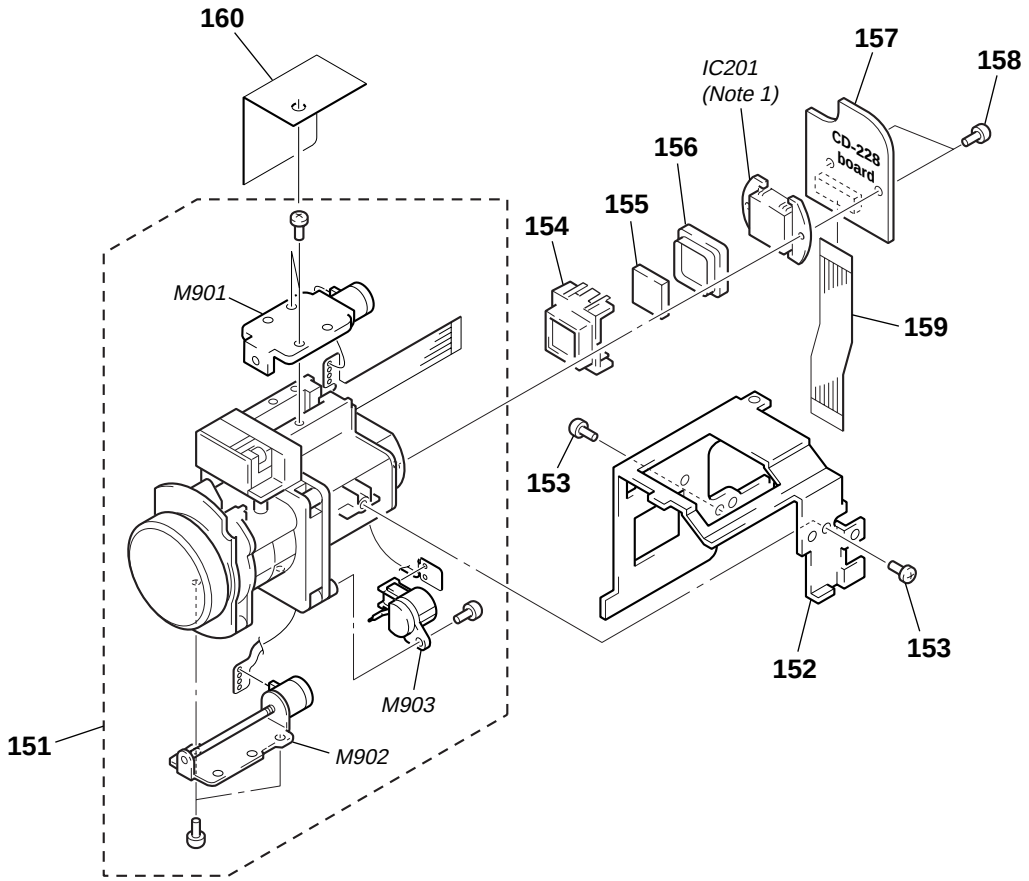
6-1-3. LENS BLOCK SECTION (FD83)



(Note 1) Be sure to read “Precautions for Replacement of CCD Imager” on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark
101	8-848-735-01	DEVICE, LENS LSV-550C	
102	3-948-339-61	TAPPING	
* 103	3-055-961-01	HOLDER (LENS)	
104	3-957-990-11	ADAPTOR (C), CCD FITTING	
105	1-758-217-11	FILTER BLOCK, OPTICAL	
106	3-949-283-01	RUBBER (2), SEAL	
107	A-7074-013-A	CD-229 BOARD, COMPLETE	
108	3-947-268-11	TITE (2), +B TAPPING (P)	
109	1-674-161-11	FP-115 (CD-FC) FLEXIBLE BOARD	
* 110	3-056-791-01	SHEET (180), LENS	
IC101	A-7031-017-A	CCD BLOCK ASSY (CCD IMAGER) (Note 1)	

6-1-4. LENS BLOCK SECTION (FD88)



(Note 1) Be sure to read “Precautions for Replacement of CCD Imager” on page 4-6 when changing the CCD imager.

(Note 2) Flexible board of video lens is not supplied. Please be careful not to break the flexible board when you change the motor unit.

Ref. No.	Part No.	Description	Remark
151	1-758-323-11	LENS, VIDEO (VCL-4708VA)	
* 152	3-055-924-01	HOLDER (LENS)	
153	3-948-339-61	TAPPING	
154	3-963-467-11	ADAPTOR (FH), CCD FITTING	
155	1-758-322-21	FILTER BLOCK, OPTICAL	
156	3-968-054-11	RUBBER (FM), SHIELD	
157	A-7074-007-A	CD-228 BOARD, COMPLETE	
158	3-318-203-11	SCREW (B1.7X6), TAPPING	
159	1-674-161-11	FP-115 (CD-FC) FLEXIBLE BOARD	
* 160	3-056-790-01	SHEET (190), LENS	
IC201	A-7030-999-A	CCD BLOCK ASSY (CCD IMAGER) (Note 1)	
M901	3-709-497-01	MOTOR, FOCUS STEPPING (Note 2)	
M902	3-709-498-01	MOTOR, ZOOM STEPPING (Note 2)	
M903	3-709-499-01	METER, ND (Note 2)	

6-2. ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  HK : Hong Kong model
  JE : Tourist model
  CH : Chinese model
  J : Japanese model
  KR : Korea model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-7074-007-A	CD-228 BOARD, COMPLETE (FD88)			
		**********			
		(Ref.No.: 2,000 Series)			
		(IC201 is not included in this complete board)			
		< CAPACITOR >			
C201	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C203	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C204	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C205	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C206	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
		< CONNECTOR >			
CN201	1-766-348-21	CONNECTOR, FFC/FPC 18P			
		< IC >			
IC201	A-7030-999-A	CCD BLOCK ASSY (CCD IMAGER)			
		< COIL >			
L201	1-414-757-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q201	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
Q202	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO		
		< RESISTOR >			
R201	1-216-864-11	METAL CHIP	0	5%	1/16W
R202	1-216-864-11	METAL CHIP	0	5%	1/16W
R203	1-216-864-11	METAL CHIP	0	5%	1/16W
R204	1-216-857-11	METAL CHIP	1M	5%	1/16W
R205	1-216-864-11	METAL CHIP	0	5%	1/16W
R206	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R207	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
	A-7074-013-A	CD-229 BOARD, COMPLETE (FD83)			
		**********			
		(Ref.No.: 2,000 Series)			
		(IC101 is not included in this complete board)			
		< CAPACITOR >			
C101	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C103	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C104	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C105	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C106	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
		< CONNECTOR >			
CN101	1-766-348-21	CONNECTOR, FFC/FPC 18P			
		< IC >			
IC101	A-7031-017-A	CCD BLOCK ASSY (CCD IMAGER)			
		< COIL >			
L101	1-414-757-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q101	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
		< RESISTOR >			
R101	1-216-864-11	METAL CHIP	0	5%	1/16W
R102	1-216-864-11	METAL CHIP	0	5%	1/16W
R103	1-216-864-11	METAL CHIP	0	5%	1/16W
R104	1-216-857-11	METAL CHIP	1M	5%	1/16W
R105	1-216-864-11	METAL CHIP	0	5%	1/16W
R106	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
	A-7074-042-A	FC-70 BOARD, COMPLETE (SERVICE) (FD88)			
	A-7074-043-A	FC-70 BOARD, COMPLETE (SERVICE) (FD83)			
		**********			
		(Ref.No.: 1,000 Series)			
		< BATTERY >			
* BT301	1-528-900-11	BATTERY, LITHIUM SECONDARY			
		< CAPACITOR >			
C001	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C002	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C003	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Be sure to read "Note on the CCD imager replacement" on page 4-6, 4-8 when changing the CCD Imager.

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Ref. No.	Part No.	Description			Remark
C005	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V (FD83)
C006	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C007	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C008	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C009	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C010	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (FD88)
C011	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (FD83)
C012	1-163-021-91	CERAMIC CHIP	0.01uF	10%	50V
C014	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (FD83)
C015	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C017	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C018	1-164-346-11	CERAMIC CHIP	1uF		16V
C020	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (FD88)
C021	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C022	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C023	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C024	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C025	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C026	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C027	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C028	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C029	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C030	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C031	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C032	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C033	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C034	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C035	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (FD88)
C036	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (FD83)
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (FD88)
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (FD88)
C104	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (FD88)
C105	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C106	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (FD88)
C108	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C109	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C110	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C112	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C114	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C115	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C118	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C119	1-113-642-11	TANTAL. CHIP	47uF	20%	10V
C120	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C124	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C125	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C126	1-135-157-21	TANTALUM CHIP	10uF	20%	6.3V
C127	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C201	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C203	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C204	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C205	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C206	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C209	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C210	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C213	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C214	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C215	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C217	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C219	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C220	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C221	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C222	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C223	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C224	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C225	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C226	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C227	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C228	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C234	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C235	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C236	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C237	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C238	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V
C239	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C301	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C302	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C303	1-104-912-11	TANTAL. CHIP	3.3uF	20%	6.3V
C305	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C309	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C310	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C311	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C320	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C321	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C322	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C324	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C325	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C326	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C328	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C329	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C330	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C401	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C402	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C403	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C404	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C405	1-162-914-11	CERAMIC CHIP	9PF	0.5PF	50V
C406	1-162-914-11	CERAMIC CHIP	9PF	0.5PF	50V
C407	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C408	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C409	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C410	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C411	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remark
C414	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C415	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C416	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C417	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C422	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C423	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C424	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C425	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C426	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C501	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C502	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C505	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C506	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C510	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C601	1-113-500-11	TANTAL. CHIP	100uF	20%	10V
C602	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C603	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C604	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C605	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C606	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C607	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C608	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C609	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C610	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C611	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C613	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C614	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C615	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C620	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C702	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C703	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C704	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C705	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C706	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C708	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C709	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C710	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C711	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C712	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C713	1-109-935-11	TANTAL. CHIP	4.7uF	20%	6.3V
C714	1-135-208-11	TANTAL. CHIP	1uF	20%	10V
C715	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C716	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C718	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C719	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C720	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C721	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C722	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C723	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C724	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C725	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C726	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C727	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C729	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C732	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C733	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C734	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C735	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C736	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C741	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C742	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C743	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C744	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C802	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C803	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C804	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C805	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C806	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C808	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C809	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C810	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C811	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C814	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C815	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C816	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C817	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C818	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C819	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C820	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C821	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C822	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C823	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C824	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C825	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C826	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C827	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C828	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C829	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C830	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C831	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C832	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C833	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C834	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C835	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C836	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C837	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C838	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C839	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C840	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C841	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C842	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C843	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C844	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C845	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C846	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C847	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C848	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C849	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C850	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C851	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C852	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C853	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C858	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C863	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C864	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C865	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C901	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C902	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C903	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C904	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C906	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C907	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C908	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C909	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C913	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN001	1-764-526-11	CONNECTOR, FFC/FPC 18P			
CN101	1-779-336-11	CONNECTOR, FFC/FPC 24P			
CN301	1-779-327-11	CONNECTOR, FFC/FPC 6P			
CN302	1-779-806-21	CONNECTOR 8P			
CN501	1-785-483-21	CONNECTOR, BOARD TO BOARD 70P			
CN701	1-695-320-21	PIN, CONNECTOR (1.5mm) (SMD) 2P			
* CN801	1-766-376-11	PIN, CONNECTOR (1.5mm) (SMD) 9P			
		< DIODE >			
D101	8-719-067-36	DIODE MA3ZD1200LS0 (FD88)			
D301	8-719-049-09	DIODE 1SS367-T3SONY			
D302	8-719-073-01	DIODE MA111-(K8).S0			
D303	8-719-049-09	DIODE 1SS367-T3SONY			
D601	8-719-045-87	DIODE MA4Z082WA-(TX).SO			
D602	8-719-045-87	DIODE MA4Z082WA-(TX).SO			
D603	8-719-045-87	DIODE MA4Z082WA-(TX).SO			
D604	8-719-073-01	DIODE MA111-(K8).S0			
D804	8-719-027-76	DIODE 1SS357-TPH3			
D805	8-719-027-77	DIODE MA796-TX			
D806	8-719-073-01	DIODE MA111-(K8).S0			
D807	8-719-073-01	DIODE MA111-(K8).S0			
D808	8-719-073-03	DIODE MA8082-(K8).S0			
D809	8-719-073-03	DIODE MA8082-(K8).S0			
		< FERRITE BEAD >			
FB001	1-500-284-21	INDUCTOR CHIP	0uH (FD83)		
FB002	1-414-228-11	INDUCTOR CHIP	0uH		
FB003	1-500-284-21	INDUCTOR CHIP	0uH (FD88)		
FB004	1-500-283-11	INDUCTOR CHIP	0uH		
FB005	1-500-284-21	INDUCTOR CHIP	0uH		
FB006	1-500-284-21	INDUCTOR CHIP	0uH		
FB007	1-414-228-11	INDUCTOR CHIP	0uH (FD88)		
FB008	1-414-228-11	INDUCTOR CHIP	0uH (FD83)		
FB201	1-414-228-11	INDUCTOR CHIP	0uH		
FB202	1-500-234-22	FERRITE	0uH		
FB204	1-500-234-22	FERRITE	0uH		
FB205	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
FB206	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
FB207	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
FB501	1-414-228-11	INDUCTOR CHIP	0uH		
FB601	1-414-633-22	INDUCTOR CHIP	0uH		
FB801	1-414-226-21	INDUCTOR CHIP	0uH		
		< IC >			
IC001	8-752-395-77	IC CXD2457R-T4 (FD83)			
IC002	8-759-565-67	IC XC62FP3202PR			
IC003	8-752-397-43	IC CXD2470R-T4 (FD88)			

Note: Resistors are mounted to the location where FB205-207 are printed

Ref. No.	Part No.	Description	Remark
IC004	8-759-573-29	IC CCD1000Y-1/2K	
IC101	8-759-492-31	IC MPC17A134VMEL (FD88)	
IC102	8-759-337-40	IC NJM2904V (TE2)	
IC103	8-759-492-31	IC MPC17A134VMEL	
IC104	8-759-338-78	IC BA10324AFV-E2	
IC105	8-752-377-38	IC CXD2430N-T4	
IC106	8-759-426-25	IC MB88346LPFV-G-BND-ER	
IC201	8-759-586-38	IC MB91002LGA-G	
IC202	8-759-586-08	IC MB81F641642C-103LFN-ER	
IC301	8-759-565-67	IC XC62FP3202PR	
IC302	8-759-525-51	IC S-80827HNNP-A9A-T2	
IC303	8-759-591-42	IC S579607PZ-TEB	
IC305	8-759-566-20	IC AK6440BH-E2	
IC306	8-759-538-14	IC S-3513BEFS-TB	
IC401	8-759-585-34	IC HD6417612RSBP	
IC402	8-759-566-18	IC AK6480BH-E2	
IC403	8-759-586-09	IC MBM29LV800BA-10PFTN-FK-ER	
IC404	8-759-597-69	IC uPD4516161AG5-A10B-9NF-E2	
IC405	8-759-447-77	IC TC7WH74FU (TE12R)	
IC503	8-752-398-19	IC CXD3147R-T6	
IC601	8-759-582-18	IC NJM2538BV (TE2)	
IC701	8-759-566-19	IC AK4518-VF-E2	
IC702	8-759-582-00	IC AN2904FHQ-EB	
IC801	8-759-060-94	IC MB3785APFV-G-BND-ER	
IC901	8-759-572-54	IC TA6009FN (EL)	
IC902	8-759-591-16	IC uPD65943GC-Y01-9EU	
IC903	8-759-196-97	IC TC7SH32FU-TE85R	
		< JACK >	
J601	1-695-514-31	JACK (SMALL TYPE) 1P (AUDIO (MONO)/VIDEO OUT)	
		< COIL >	
L001	1-414-754-11	INDUCTOR 10uH (FD83)	
L002	1-414-754-11	INDUCTOR 10uH	
L003	1-414-754-11	INDUCTOR 10uH	
L004	1-414-754-11	INDUCTOR 10uH	
L101	1-414-078-11	INDUCTOR 10uH	
L102	1-414-078-11	INDUCTOR 10uH	
L103	1-414-754-11	INDUCTOR 10uH	
L104	1-414-754-11	INDUCTOR 10uH	
L201	1-414-754-11	INDUCTOR 10uH	
L202	1-414-754-11	INDUCTOR 10uH	
L203	1-414-754-11	INDUCTOR 10uH	
L204	1-414-756-11	INDUCTOR 47uH	
L205	1-414-756-11	INDUCTOR 47uH	
L209	1-414-754-11	INDUCTOR 10uH	
L302	1-414-754-11	INDUCTOR 10uH	
L401	1-414-754-11	INDUCTOR 10uH	
L402	1-414-754-11	INDUCTOR 10uH	
L403	1-414-754-11	INDUCTOR 10uH	
L501	1-414-754-11	INDUCTOR 10uH	
L502	1-414-753-91	INDUCTOR 4.7uH	
L601	1-414-402-11	INDUCTOR 47uH	
L602	1-414-754-11	INDUCTOR 10uH	
L701	1-414-754-11	INDUCTOR 10uH	
L702	1-414-754-11	INDUCTOR 10uH	
L703	1-414-754-11	INDUCTOR 10uH	
L704	1-414-754-11	INDUCTOR 10uH	
L706	1-414-754-11	INDUCTOR 10uH	

Ref. No.	Part No.	Description		Remark
L801	1-416-344-11	INDUCTOR	10uH	
L802	1-416-344-11	INDUCTOR	10uH	
L803	1-416-511-11	INDUCTOR	47uH	
L804	1-416-345-11	INDUCTOR	22uH	
L805	1-416-345-11	INDUCTOR	22uH	
L806	1-414-396-21	INDUCTOR	4.7uH	
L807	1-414-396-21	INDUCTOR	4.7uH	
L808	1-414-396-21	INDUCTOR	4.7uH	
L809	1-414-406-11	INDUCTOR	220uH	
L810	1-414-396-21	INDUCTOR	4.7uH	
L811	1-414-396-21	INDUCTOR	4.7uH	
L812	1-414-400-11	INDUCTOR	22uH	
L813	1-414-396-21	INDUCTOR	4.7uH	
L814	1-414-396-21	INDUCTOR	4.7uH	
L815	1-414-396-21	INDUCTOR	4.7uH	
L816	1-416-344-11	INDUCTOR	10uH	
L901	1-414-756-11	INDUCTOR	47uH	
L902	1-414-756-11	INDUCTOR	47uH	

< TRANSISTOR >

Q001	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q002	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO	
Q003	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q004	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO	
Q005	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q101	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q102	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q103	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q201	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q202	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q203	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q204	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q205	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q206	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO	
Q207	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO	
Q302	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q303	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q304	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q305	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q306	8-729-041-43	TRANSISTOR	HN1L02FU (TE85R)	
Q401	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q501	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q512	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q601	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q602	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q603	8-729-042-74	TRANSISTOR	UN9216J-(K8).SO	
Q604	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO	
Q605	8-729-230-60	TRANSISTOR	2SA1586YG-TE85L	
Q705	8-729-041-51	TRANSISTOR	FMMT617TA	
Q706	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q806	8-729-033-14	TRANSISTOR	FP107-TL	
Q807	8-729-804-41	TRANSISTOR	2SB1122-ST-TD	
Q808	8-729-047-74	TRANSISTOR	CPH5701-TL	
Q809	8-729-047-74	TRANSISTOR	CPH5701-TL	
Q810	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q811	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q812	8-729-041-23	TRANSISTOR	NDS356AP	
Q813	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q814	8-729-037-61	TRANSISTOR	UN9113J-(K8).SO	
Q815	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO	
Q816	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q817	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q818	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q819	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q820	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q821	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q822	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q823	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q824	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q825	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q826	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q827	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO	
Q828	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q829	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q830	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q831	8-729-043-94	TRANSISTOR	CPH3106-PM-TL	
Q832	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q833	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	
Q834	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO	

< RESISTOR >

R001	1-216-864-11	METAL CHIP	0	5%	1/16W
R002	1-216-864-11	METAL CHIP	0	5%	1/16W
R003	1-216-864-11	METAL CHIP	0	5%	1/16W (FD83)
R004	1-216-801-11	METAL CHIP	22	5%	1/16W
R005	1-216-801-11	METAL CHIP	22	5%	1/16W
R006	1-216-864-11	METAL CHIP	0	5%	1/16W
R007	1-216-815-11	METAL CHIP	330	5%	1/16W (FD83)
R008	1-216-845-11	METAL CHIP	100K	5%	1/16W
R009	1-216-864-11	METAL CHIP	0	5%	1/16W (FD83)
R010	1-216-864-11	METAL CHIP	0	5%	1/16W (FD83)
R012	1-216-864-11	METAL CHIP	0	5%	1/16W (FD88)
R013	1-216-841-11	METAL CHIP	47K	5%	1/16W
R014	1-216-815-11	METAL CHIP	330	5%	1/16W
R016	1-216-815-11	METAL CHIP	330	5%	1/16W (FD88)
R017	1-216-833-91	RES, CHIP	10K	5%	1/16W
R019	1-216-809-11	METAL CHIP	100	5%	1/16W
R021	1-216-864-11	METAL CHIP	0	5%	1/16W
R022	1-216-815-11	METAL CHIP	330	5%	1/16W
R102	1-216-797-11	METAL CHIP	10	5%	1/16W (FD88)
R103	1-216-821-11	METAL CHIP	1K	5%	1/16W
R104	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (FD83)
R104	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (FD88)
R105	1-216-845-11	METAL CHIP	100K	5%	1/16W
R106	1-216-833-91	RES, CHIP	10K	5%	1/16W
R107	1-216-845-11	METAL CHIP	100K	5%	1/16W
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W (FD83)
R108	1-216-841-11	METAL CHIP	47K	5%	1/16W (FD88)
R110	1-216-815-11	METAL CHIP	330	5%	1/16W
R111	1-216-845-11	METAL CHIP	100K	5%	1/16W
R112	1-216-837-11	METAL CHIP	22K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R113	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W
R115	1-216-848-11	METAL CHIP	180K	5%	1/16W
R116	1-216-833-91	RES, CHIP	10K	5%	1/16W
R117	1-216-841-11	METAL CHIP	47K	5%	1/16W
R118	1-216-834-11	METAL CHIP	12K	5%	1/16W
R119	1-216-845-11	METAL CHIP	100K	5%	1/16W
R120	1-216-843-11	METAL CHIP	68K	5%	1/16W
R121	1-216-843-11	METAL CHIP	68K	5%	1/16W
R122	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R123	1-216-848-11	METAL CHIP	180K	5%	1/16W
R124	1-216-826-11	METAL CHIP	2.7K	5%	1/16W (FD88)
R124	1-216-830-11	METAL CHIP	5.6K	5%	1/16W (FD83)
R125	1-216-848-11	METAL CHIP	180K	5%	1/16W
R126	1-218-876-11	RES, CHIP	16K	0.50%	1/16W
R127	1-218-847-11	RES, CHIP	1K	0.50%	1/16W
R129	1-216-864-11	METAL CHIP	0	5%	1/16W
R130	1-216-864-11	METAL CHIP	0	5%	1/16W (FD83)
R131	1-216-797-11	METAL CHIP	10	5%	1/16W (FD83)
R203	1-216-864-11	METAL CHIP	0	5%	1/16W
R204	1-216-864-11	METAL CHIP	0	5%	1/16W
R205	1-216-864-11	METAL CHIP	0	5%	1/16W
R206	1-216-864-11	METAL CHIP	0	5%	1/16W
R207	1-216-864-11	METAL CHIP	0	5%	1/16W
R208	1-216-821-11	METAL CHIP	1K	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R211	1-216-864-11	METAL CHIP	0	5%	1/16W
R212	1-216-864-11	METAL CHIP	0	5%	1/16W
R213	1-216-864-11	METAL CHIP	0	5%	1/16W
R214	1-218-827-11	RES, CHIP	150	0.50%	1/16W
R215	1-218-827-11	RES, CHIP	150	0.50%	1/16W
R216	1-218-827-11	RES, CHIP	150	0.50%	1/16W
R217	1-218-857-11	RES, CHIP	2.7K	0.50%	1/16W
R218	1-216-841-11	METAL CHIP	47K	5%	1/16W
R219	1-216-864-11	METAL CHIP	0	5%	1/16W
R220	1-216-864-11	METAL CHIP	0	5%	1/16W
R223	1-216-295-91	SHORT	0		
R224	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R225	1-216-295-91	SHORT	0		
R226	1-216-821-11	METAL CHIP	1K	5%	1/16W
R227	1-216-864-11	METAL CHIP	0	5%	1/16W
R228	1-216-821-11	METAL CHIP	1K	5%	1/16W
R229	1-216-864-11	METAL CHIP	0	5%	1/16W
R230	1-216-864-11	METAL CHIP	0	5%	1/16W
R231	1-216-821-11	METAL CHIP	1K	5%	1/16W
R232	1-216-821-11	METAL CHIP	1K	5%	1/16W
R233	1-216-820-11	METAL CHIP	820	5%	1/16W
R234	1-216-837-11	METAL CHIP	22K	5%	1/16W
R235	1-216-864-11	METAL CHIP	0	5%	1/16W
R301	1-216-864-11	METAL CHIP	0	5%	1/16W
R302	1-216-814-11	METAL CHIP	270	5%	1/16W
R303	1-216-841-11	METAL CHIP	47K	5%	1/16W
R304	1-216-853-11	METAL CHIP	470K	5%	1/16W
R305	1-216-853-11	METAL CHIP	470K	5%	1/16W
R306	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R307	1-216-853-11	METAL CHIP	470K	5%	1/16W
R308	1-216-833-91	RES, CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R310	1-216-845-11	METAL CHIP	100K	5%	1/16W
R311	1-216-853-11	METAL CHIP	470K	5%	1/16W
R312	1-216-853-11	METAL CHIP	470K	5%	1/16W
R313	1-216-845-11	METAL CHIP	100K	5%	1/16W
R314	1-216-845-11	METAL CHIP	100K	5%	1/16W
R315	1-216-853-11	METAL CHIP	470K	5%	1/16W
R316	1-216-845-11	METAL CHIP	100K	5%	1/16W
R317	1-216-841-11	METAL CHIP	47K	5%	1/16W
R318	1-216-853-11	METAL CHIP	470K	5%	1/16W
R319	1-216-845-11	METAL CHIP	100K	5%	1/16W
R320	1-216-845-11	METAL CHIP	100K	5%	1/16W
R321	1-216-845-11	METAL CHIP	100K	5%	1/16W
R322	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R328	1-216-821-11	METAL CHIP	1K	5%	1/16W
R331	1-216-821-11	METAL CHIP	1K	5%	1/16W
R332	1-216-821-11	METAL CHIP	1K	5%	1/16W
R333	1-216-821-11	METAL CHIP	1K	5%	1/16W
R334	1-216-821-11	METAL CHIP	1K	5%	1/16W
R335	1-216-821-11	METAL CHIP	1K	5%	1/16W
R343	1-216-853-11	METAL CHIP	470K	5%	1/16W
R355	1-216-809-11	METAL CHIP	100	5%	1/16W
R357	1-216-864-11	METAL CHIP	0	5%	1/16W
R360	1-216-821-11	METAL CHIP	1K	5%	1/16W
R362	1-216-864-11	METAL CHIP	0	5%	1/16W
R363	1-216-864-11	METAL CHIP	0	5%	1/16W
R364	1-216-841-11	METAL CHIP	47K	5%	1/16W
R365	1-216-853-11	METAL CHIP	470K	5%	1/16W
R366	1-216-853-11	METAL CHIP	470K	5%	1/16W
R369	1-216-837-11	METAL CHIP	22K	5%	1/16W
R370	1-216-864-11	METAL CHIP	0	5%	1/16W
R372	1-216-864-11	METAL CHIP	0	5%	1/16W
R373	1-216-864-11	METAL CHIP	0	5%	1/16W
R374	1-216-864-11	METAL CHIP	0	5%	1/16W
R375	1-216-864-11	METAL CHIP	0	5%	1/16W
R376	1-216-833-91	RES, CHIP	10K	5%	1/16W
R377	1-216-821-11	METAL CHIP	1K	5%	1/16W
R379	1-216-833-91	RES, CHIP	10K	5%	1/16W
R380	1-216-821-11	METAL CHIP	1K	5%	1/16W
R382	1-216-833-91	RES, CHIP	10K	5%	1/16W
R383	1-216-821-11	METAL CHIP	1K	5%	1/16W
R384	1-216-864-11	METAL CHIP	0	5%	1/16W
R385	1-216-833-91	RES, CHIP	10K	5%	1/16W
R386	1-216-821-11	METAL CHIP	1K	5%	1/16W
R388	1-216-833-91	RES, CHIP	10K	5%	1/16W
R389	1-216-821-11	METAL CHIP	1K	5%	1/16W
R391	1-216-864-11	METAL CHIP	0	5%	1/16W
R393	1-216-857-11	METAL CHIP	1M	5%	1/16W
R394	1-216-841-11	METAL CHIP	47K	5%	1/16W
R395	1-216-845-11	METAL CHIP	100K	5%	1/16W
R396	1-216-813-11	METAL CHIP	220	5%	1/16W
R397	1-216-864-11	METAL CHIP	0	5%	1/16W
R398	1-216-833-91	RES, CHIP	10K	5%	1/16W
R399	1-216-821-11	METAL CHIP	1K	5%	1/16W
R401	1-216-864-11	METAL CHIP	0	5%	1/16W
R404	1-216-821-11	METAL CHIP	1K	5%	1/16W
R405	1-216-864-11	METAL CHIP	0	5%	1/16W
R406	1-216-864-11	METAL CHIP	0	5%	1/16W
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W
R408	1-216-841-11	METAL CHIP	47K	5%	1/16W
R409	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R410	1-216-841-11	METAL CHIP	47K	5%	1/16W
R411	1-216-841-11	METAL CHIP	47K	5%	1/16W
R413	1-216-841-11	METAL CHIP	47K	5%	1/16W
R414	1-216-841-11	METAL CHIP	47K	5%	1/16W
R416	1-216-864-11	METAL CHIP	0	5%	1/16W
R417	1-216-853-11	METAL CHIP	470K	5%	1/16W
R418	1-216-864-11	METAL CHIP	0	5%	1/16W
R419	1-216-841-11	METAL CHIP	47K	5%	1/16W
R420	1-216-841-11	METAL CHIP	47K	5%	1/16W
R421	1-216-864-11	METAL CHIP	0	5%	1/16W
R422	1-216-864-11	METAL CHIP	0	5%	1/16W
R423	1-216-841-11	METAL CHIP	47K	5%	1/16W
R424	1-216-841-11	METAL CHIP	47K	5%	1/16W
R425	1-216-841-11	METAL CHIP	47K	5%	1/16W
R426	1-216-864-11	METAL CHIP	0	5%	1/16W
R427	1-216-845-11	METAL CHIP	100K	5%	1/16W
R428	1-216-864-11	METAL CHIP	0	5%	1/16W
R429	1-216-864-11	METAL CHIP	0	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R432	1-216-864-11	METAL CHIP	0	5%	1/16W
R433	1-216-864-11	METAL CHIP	0	5%	1/16W
R436	1-216-864-11	METAL CHIP	0	5%	1/16W
R437	1-216-841-11	METAL CHIP	47K	5%	1/16W
R438	1-216-864-11	METAL CHIP	0	5%	1/16W
R440	1-216-864-11	METAL CHIP	0	5%	1/16W
R441	1-216-833-91	RES, CHIP	10K	5%	1/16W
R442	1-216-857-11	METAL CHIP	1M	5%	1/16W
R443	1-216-845-11	METAL CHIP	100K	5%	1/16W
R501	1-216-864-11	METAL CHIP	0	5%	1/16W
R502	1-216-864-11	METAL CHIP	0	5%	1/16W
R503	1-216-857-11	METAL CHIP	1M	5%	1/16W
R504	1-216-864-11	METAL CHIP	0	5%	1/16W
R505	1-216-864-11	METAL CHIP	0	5%	1/16W
R506	1-216-815-11	METAL CHIP	330	5%	1/16W
R508	1-216-864-11	METAL CHIP	0	5%	1/16W
R509	1-216-864-11	METAL CHIP	0	5%	1/16W
R510	1-216-819-11	METAL CHIP	680	5%	1/16W
R511	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R517	1-216-812-11	METAL CHIP	180	5%	1/16W
R518	1-216-845-11	METAL CHIP	100K	5%	1/16W
R601	1-216-837-11	METAL CHIP	22K	5%	1/16W
R602	1-216-833-91	RES, CHIP	10K	5%	1/16W
R603	1-216-833-91	RES, CHIP	10K	5%	1/16W
R604	1-216-857-11	METAL CHIP	1M	5%	1/16W
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W
R606	1-216-807-11	METAL CHIP	68	5%	1/16W
R607	1-216-864-11	METAL CHIP	0	5%	1/16W
R608	1-216-864-11	METAL CHIP	0	5%	1/16W
R609	1-216-821-11	METAL CHIP	1K	5%	1/16W
R610	1-216-864-11	METAL CHIP	0	5%	1/16W
R611	1-216-864-11	METAL CHIP	0	5%	1/16W
R614	1-216-864-11	METAL CHIP	0	5%	1/16W
R615	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R616	1-216-845-11	METAL CHIP	100K	5%	1/16W
R617	1-216-841-11	METAL CHIP	47K	5%	1/16W
R618	1-216-864-11	METAL CHIP	0	5%	1/16W
R619	1-216-864-11	METAL CHIP	0	5%	1/16W
R621	1-216-864-11	METAL CHIP	0	5%	1/16W
R622	1-216-817-11	METAL CHIP	470	5%	1/16W
R623	1-216-864-11	METAL CHIP	0	5%	1/16W
R624	1-216-864-11	METAL CHIP	0	5%	1/16W
R625	1-216-864-11	METAL CHIP	0	5%	1/16W
R626	1-216-864-11	METAL CHIP	0	5%	1/16W
R627	1-216-864-11	METAL CHIP	0	5%	1/16W
R702	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R703	1-216-864-11	METAL CHIP	0	5%	1/16W
R704	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R705	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R706	1-216-864-11	METAL CHIP	0	5%	1/16W
R707	1-216-841-11	METAL CHIP	47K	5%	1/16W
R709	1-216-864-11	METAL CHIP	0	5%	1/16W
R710	1-216-817-11	METAL CHIP	470	5%	1/16W
R711	1-216-838-11	METAL CHIP	27K	5%	1/16W
R712	1-216-841-11	METAL CHIP	47K	5%	1/16W
R713	1-216-842-11	METAL CHIP	56K	5%	1/16W
R716	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R717	1-216-835-11	METAL CHIP	15K	5%	1/16W
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W
R722	1-216-864-11	METAL CHIP	0	5%	1/16W
R729	1-216-843-11	METAL CHIP	68K	5%	1/16W
R730	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R733	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R736	1-216-864-11	METAL CHIP	0	5%	1/16W
R739	1-216-809-11	METAL CHIP	100	5%	1/16W
R801	1-216-295-91	SHORT	0		
R802	1-216-833-91	RES, CHIP	10K	5%	1/16W
R803	1-216-833-91	RES, CHIP	10K	5%	1/16W
R809	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R810	1-216-850-11	METAL CHIP	270K	5%	1/16W
R811	1-216-864-11	METAL CHIP	0	5%	1/16W
R812	1-216-864-11	METAL CHIP	0	5%	1/16W
R813	1-216-864-11	METAL CHIP	0	5%	1/16W
R814	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R815	1-218-878-11	RES, CHIP	20K	0.50%	1/16W
R816	1-218-860-11	RES, CHIP	3.6K	0.50%	1/16W
R817	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R818	1-216-840-11	METAL CHIP	39K	5%	1/16W
R819	1-216-838-11	METAL CHIP	27K	5%	1/16W
R820	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R821	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R824	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R825	1-218-837-11	RES, CHIP	390	0.50%	1/16W
R826	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R827	1-216-847-11	METAL CHIP	150K	5%	1/16W
R828	1-216-833-91	RES, CHIP	10K	5%	1/16W
R830	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R831	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R832	1-218-845-11	RES, CHIP	820	0.50%	1/16W
R833	1-218-870-11	RES, CHIP	9.1K	0.50%	1/16W
R834	1-216-841-11	METAL CHIP	47K	5%	1/16W
R835	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R836	1-216-821-11	METAL CHIP	1K	5%	1/16W
R837	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R840	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R841	1-218-875-11	RES, CHIP	15K	0.50%	1/16W
R842	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R843	1-216-833-91	RES, CHIP	10K	5%	1/16W
R844	1-216-845-11	METAL CHIP	100K	5%	1/16W
R845	1-216-837-11	METAL CHIP	22K	5%	1/16W
R846	1-216-813-11	METAL CHIP	220	5%	1/16W

Ref. No.	Part No.	Description			Remark
R847	1-216-819-11	METAL CHIP	680	5%	1/16W
R848	1-216-820-11	METAL CHIP	820	5%	1/16W
R849	1-216-820-11	METAL CHIP	820	5%	1/16W
R850	1-216-853-11	METAL CHIP	470K	5%	1/16W
R851	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R852	1-216-845-11	METAL CHIP	100K	5%	1/16W
R853	1-216-845-11	METAL CHIP	100K	5%	1/16W
R856	1-216-845-11	METAL CHIP	100K	5%	1/16W
R857	1-216-841-11	METAL CHIP	47K	5%	1/16W
R858	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R860	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R862	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R863	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R864	1-216-864-11	METAL CHIP	0	5%	1/16W
R865	1-216-835-11	METAL CHIP	15K	5%	1/16W
R866	1-216-845-11	METAL CHIP	100K	5%	1/16W
R867	1-216-841-11	METAL CHIP	47K	5%	1/16W
R868	1-216-845-11	METAL CHIP	100K	5%	1/16W
R869	1-216-845-11	METAL CHIP	100K	5%	1/16W
R870	1-216-845-11	METAL CHIP	100K	5%	1/16W
R871	1-216-841-11	METAL CHIP	47K	5%	1/16W
R872	1-218-893-11	RES, CHIP	82K	0.50%	1/16W
R873	1-216-845-11	METAL CHIP	100K	5%	1/16W
R874	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R875	1-216-833-91	RES, CHIP	10K	5%	1/16W
R876	1-218-877-11	RES, CHIP	18K	0.50%	1/16W
R877	1-218-852-11	RES, CHIP	1.6K	0.50%	1/16W
R878	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R879	1-218-882-11	RES, CHIP	30K	0.50%	1/16W
R880	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R881	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R887	1-216-864-11	METAL CHIP	0	5%	1/16W
R888	1-216-864-11	METAL CHIP	0	5%	1/16W
R889	1-216-864-11	METAL CHIP	0	5%	1/16W
R901	1-216-845-11	METAL CHIP	100K	5%	1/16W
R902	1-216-845-11	METAL CHIP	100K	5%	1/16W
R903	1-216-845-11	METAL CHIP	100K	5%	1/16W
R904	1-216-845-11	METAL CHIP	100K	5%	1/16W
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W
R906	1-216-845-11	METAL CHIP	100K	5%	1/16W
R908	1-216-864-11	METAL CHIP	0	5%	1/16W
R909	1-218-872-11	RES, CHIP	11K	0.50%	1/16W
R910	1-216-847-11	METAL CHIP	150K	5%	1/16W
R911	1-216-813-11	METAL CHIP	220	5%	1/16W
R912	1-216-845-11	METAL CHIP	100K	5%	1/16W
R913	1-216-864-11	METAL CHIP	0	5%	1/16W
R914	1-216-833-91	RES, CHIP	10K	5%	1/16W
R915	1-216-833-91	RES, CHIP	10K	5%	1/16W
R916	1-216-853-11	METAL CHIP	470K	5%	1/16W
R917	1-216-864-11	METAL CHIP	0	5%	1/16W
R918	1-216-841-11	METAL CHIP	47K	5%	1/16W
R919	1-216-864-11	METAL CHIP	0	5%	1/16W
R922	1-216-833-91	RES, CHIP	10K	5%	1/16W
R923	1-216-833-91	RES, CHIP	10K	5%	1/16W
R951	1-216-845-11	METAL CHIP	100K	5%	1/16W
R952	1-216-833-91	RES, CHIP	10K	5%	1/16W
R953	1-216-833-91	RES, CHIP	10K	5%	1/16W
R954	1-216-853-11	METAL CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R955	1-216-845-11	METAL CHIP	100K	5%	1/16W
R957	1-216-864-11	METAL CHIP	0	5%	1/16W
R958	1-216-821-11	METAL CHIP	1K	5%	1/16W
R959	1-216-853-11	METAL CHIP	470K	5%	1/16W
R960	1-216-849-11	METAL CHIP	220K	5%	1/16W
R961	1-216-845-11	METAL CHIP	100K	5%	1/16W
R962	1-216-845-11	METAL CHIP	100K	5%	1/16W
R963	1-216-853-11	METAL CHIP	470K	5%	1/16W
R964	1-216-845-11	METAL CHIP	100K	5%	1/16W
		< SHOCK SENSOR >			
SE901	1-801-868-41	SENSOR, SHOCK			
		< TRANSFORMER >			
⚠T801	1-429-565-21	TRANSFORMER, CONVERTER			
		< VIBRATOR >			
X003	1-781-457-21	OSCILLATOR, CRYSTAL (24.375MHz)			
X004	1-781-456-21	OSCILLATOR, CRYSTAL (24.545451MHz)			
X301	1-767-450-11	VIBRATOR, CERAMIC (20MHz)			
X302	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)			
X401	1-781-413-21	VIBRATOR, CRYSTAL (12.9024MHz)			
X501	1-781-160-21	VIBRATOR, CERAMIC (16.384MHz)			
X901	1-781-455-21	VIBRATOR, CRYSTAL (48MHz)			
	A-7074-015-A	FU-135 BOARD, COMPLETE (FD83)			
	A-7074-009-A	FU-137 BOARD, COMPLETE (FD88)			
		**********			
		(Ref.No.: 2,000 Series)			
		< CONNECTOR >			
* CN051	1-760-388-11	CONNECTOR PIN (SMD) 9 PIN			
CN052	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
		< FUSE >			
⚠F051	1-576-286-21	FUSE, MICRO (1.4A/24V)			
⚠F052	1-576-286-21	FUSE, MICRO (1.4A/24V)			
⚠F053	1-576-286-21	FUSE, MICRO (1.4A/24V)			
⚠F054	1-576-286-21	FUSE, MICRO (1.4A/24V)			
		< FERRITE BEAD >			
FB051	1-414-228-11	INDUCTOR CHIP 0uH			
FB052	1-414-228-11	INDUCTOR CHIP 0uH			
		< FILTER >			
LF051	1-411-957-11	FILTER, COMMON MODE			
	A-7074-017-A	PK-47 BOARD, COMPLETE (CASIO) (FD83)			
		**********			
		(Ref.No.: 2,000 Series)			
		< CAPACITOR >			
C601	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C603	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C604	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C605	1-113-642-11	TANTAL. CHIP	47uF	20%	10V

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Ref. No.	Part No.	Description			Remark
C608	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C609	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C611	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C801	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C802	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C806	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C807	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C808	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C809	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C810	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C811	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C812	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C813	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C814	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C815	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C816	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C851	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C852	1-113-981-11	TANTAL. CHIP	22uF	20%	20V
C853	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C854	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C855	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C856	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C857	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C858	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C859	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C861	1-104-911-11	TANTAL. CHIP	33uF	20%	10V
C862	1-164-346-11	CERAMIC CHIP	1uF		16V
C863	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C864	1-164-661-11	CERAMIC CHIP	0.018uF	10%	50V
C865	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
⚠C866	1-113-521-11	CERAMIC CHIP	12PF	10%	3KV
C901	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C902	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C903	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C904	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C905	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C906	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C907	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C909	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C910	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C911	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C912	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C913	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C916	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C917	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C918	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C919	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V

< CONNECTOR >

CN601	1-764-526-11	CONNECTOR, FFC/FPC 18P	
* CN602	1-750-075-11	CONNECTOR, FFC/FPC 10P	
CN603	1-785-482-41	CONNECTOR, BOARD TO BOARD 70P	
CN701	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P	
CN801	1-766-348-21	CONNECTOR, FFC/FPC 18P	
CN851	1-691-384-11	CONNECTOR, FFC/FPC 20P	
CN901	1-691-388-11	CONNECTOR, FFC/FPC 24P	

< DIODE >

D601	8-719-049-09	DIODE	1SS367-T3SONY
D705	8-719-061-82	DIODE	TLSU1002 (TPX1, SONY) (ACCESS)
D708	8-719-061-81	DIODE	TLYU1002 (TPX1, SONY) (FLASH/CHARGE)
D709	8-719-064-05	DIODE	TLGU1002 (TPX1, SONY) (POWER)
D801	8-719-045-87	DIODE	MA4Z082WA-(TX).SO
D802	8-719-045-87	DIODE	MA4Z082WA-(TX).SO
D852	8-719-073-01	DIODE	MA111-(K8).S0
D853	8-719-073-01	DIODE	MA111-(K8).S0
D901	8-719-073-01	DIODE	MA111-(K8).S0
D902	8-713-102-80	DIODE	1T369-01-T8A
D903	8-719-976-96	DIODE	MA8047-H-TX

< FERRITE BEAD >

FB601	1-414-226-21	INDUCTOR CHIP	0uH

< IC >

IC601	8-759-591-15	IC	TB6055F (EL)
IC801	8-759-530-19	IC	MB40D001PFV-G-BND-ER
IC802	8-759-539-27	IC	IR3Y37A4
IC803	8-759-196-97	IC	TC7SH32FU-TE85R
IC851	8-759-521-35	IC	TL5001CDR
IC852	8-759-075-70	IC	TA75S393F-TE85R
IC901	8-759-530-20	IC	CM7017L3-T4
IC902	8-759-327-01	IC	NJM062V (TE2)

< COIL >

L801	1-414-757-11	INDUCTOR	100uH
L802	1-414-078-11	INDUCTOR	10uH
L851	1-414-396-21	INDUCTOR	4.7uH
L852	1-424-674-11	INDUCTOR	22uH
L853	1-409-536-41	INDUCTOR	150uH
L901	1-414-754-11	INDUCTOR	10uH
L902	1-414-754-11	INDUCTOR	10uH
L903	1-412-951-11	INDUCTOR	10uH
L904	1-414-754-11	INDUCTOR	10uH
L905	1-412-953-11	INDUCTOR	15uH

< TRANSISTOR >

Q601	8-729-017-61	TRANSISTOR	2SB1581-T1
Q602	8-729-037-53	TRANSISTOR	2SB1462J-QR (K8).SO
Q603	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q604	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q851	8-729-042-72	TRANSISTOR	UN9214J-(K8).SO
Q852	8-729-042-59	TRANSISTOR	UN9112J-(K8).SO
Q853	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q854	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q855	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q856	8-729-823-84	TRANSISTOR	FP102-TL
Q857	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q858	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q859	8-729-037-74	TRANSISTOR	UN9213J-(K8).SO
Q860	8-729-039-43	TRANSISTOR	FP216-TL

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Ref. No.	Part No.	Description			Remark
Q861	8-729-042-59	TRANSISTOR	UN9112J-(K8).SO		
Q901	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q902	8-729-420-24	TRANSISTOR	2SB1218A-QRS-TX		
Q903	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q904	8-729-420-24	TRANSISTOR	2SB1218A-QRS-TX		
		< RESISTOR >			
R601	1-218-865-11	RES, CHIP	5.6K	0.50%	1/16W
R602	1-218-865-11	RES, CHIP	5.6K	0.50%	1/16W
R603	1-216-033-00	METAL CHIP	220	5%	1/10W
R604	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R605	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R608	1-216-845-11	METAL CHIP	100K	5%	1/16W
R609	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R610	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R611	1-216-864-11	METAL CHIP	0	5%	1/16W
R613	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R614	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R616	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R619	1-216-864-11	METAL CHIP	0	5%	1/16W
R623	1-216-839-11	METAL CHIP	33K	5%	1/16W
R624	1-216-845-11	METAL CHIP	100K	5%	1/16W
R625	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R626	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R627	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R628	1-216-817-11	METAL CHIP	470	5%	1/16W
R629	1-216-864-11	METAL CHIP	0	5%	1/16W
R630	1-216-841-11	METAL CHIP	47K	5%	1/16W
R631	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R632	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R633	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R634	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R635	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R637	1-216-821-11	METAL CHIP	1K	5%	1/16W
R638	1-216-821-11	METAL CHIP	1K	5%	1/16W
R701	1-216-819-11	METAL CHIP	680	5%	1/16W
R702	1-216-819-11	METAL CHIP	680	5%	1/16W
R703	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R704	1-216-819-11	METAL CHIP	680	5%	1/16W
R705	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R706	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R707	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R708	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R709	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R710	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R711	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R712	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R713	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R715	1-216-833-91	RES, CHIP	10K	5%	1/16W
R716	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R717	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R718	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R723	1-216-839-11	METAL CHIP	33K	5%	1/16W
R802	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R803	1-216-864-11	METAL CHIP	0	5%	1/16W
R808	1-216-837-11	METAL CHIP	22K	5%	1/16W
R809	1-216-834-11	METAL CHIP	12K	5%	1/16W
R810	1-216-864-11	METAL CHIP	0	5%	1/16W
R812	1-216-841-11	METAL CHIP	47K	5%	1/16W
R813	1-216-835-11	METAL CHIP	15K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R814	1-216-839-11	METAL CHIP	33K	5%	1/16W
R816	1-216-864-11	METAL CHIP	0	5%	1/16W
R817	1-216-834-11	METAL CHIP	12K	5%	1/16W
R818	1-216-840-11	METAL CHIP	39K	5%	1/16W
R819	1-216-848-11	METAL CHIP	180K	5%	1/16W
R820	1-216-845-11	METAL CHIP	100K	5%	1/16W
R821	1-216-833-91	RES, CHIP	10K	5%	1/16W
R825	1-216-864-11	METAL CHIP	0	5%	1/16W
R826	1-414-234-11	INDUCTOR	CHIP	0uH	
R827	1-414-234-11	INDUCTOR	CHIP	0uH	
R828	1-414-234-11	INDUCTOR	CHIP	0uH	
R829	1-216-821-11	METAL CHIP	1K	5%	1/16W
R830	1-216-821-11	METAL CHIP	1K	5%	1/16W
R853	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R854	1-218-881-11	RES, CHIP	27K	0.50%	1/16W
R855	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R856	1-216-818-11	METAL CHIP	560	5%	1/16W
R857	1-216-837-11	METAL CHIP	22K	5%	1/16W
R858	1-216-818-11	METAL CHIP	560	5%	1/16W
R859	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R860	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R861	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R862	1-218-859-11	RES, CHIP	3.3K	0.50%	1/16W
R863	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R864	1-216-841-11	METAL CHIP	47K	5%	1/16W
R865	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R866	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R867	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R868	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R869	1-216-845-11	METAL CHIP	100K	5%	1/16W
R870	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R871	1-216-837-11	METAL CHIP	22K	5%	1/16W
R872	1-216-817-11	METAL CHIP	470	5%	1/16W
R873	1-216-810-11	METAL CHIP	120	5%	1/16W
R901	1-216-864-11	METAL CHIP	0	5%	1/16W
R902	1-216-864-11	METAL CHIP	0	5%	1/16W
R904	1-216-841-11	METAL CHIP	47K	5%	1/16W
R905	1-216-841-11	METAL CHIP	47K	5%	1/16W
R906	1-216-864-11	METAL CHIP	0	5%	1/16W
R907	1-216-864-11	METAL CHIP	0	5%	1/16W
R911	1-216-846-11	METAL CHIP	120K	5%	1/16W
R912	1-216-855-11	METAL CHIP	680K	5%	1/16W
R913	1-216-842-11	METAL CHIP	56K	5%	1/16W
R916	1-216-833-91	RES, CHIP	10K	5%	1/16W
R918	1-218-893-11	RES, CHIP	82K	0.50%	1/16W
R919	1-216-857-11	METAL CHIP	1M	5%	1/16W
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W
R921	1-216-843-11	METAL CHIP	68K	5%	1/16W
R922	1-216-843-11	METAL CHIP	68K	5%	1/16W
R923	1-216-841-11	METAL CHIP	47K	5%	1/16W
R924	1-216-864-11	METAL CHIP	0	5%	1/16W
R925	1-218-889-11	RES, CHIP	56K	0.50%	1/16W
R926	1-216-864-11	METAL CHIP	0	5%	1/16W
R927	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R928	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R929	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R932	1-216-845-11	METAL CHIP	100K	5%	1/16W
R933	1-216-839-11	METAL CHIP	33K	5%	1/16W
R935	1-216-845-11	METAL CHIP	100K	5%	1/16W
R936	1-216-845-11	METAL CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R937	1-216-864-11	METAL CHIP	0	5%	1/16W
R938	1-216-864-11	METAL CHIP	0	5%	1/16W
R939	1-216-864-11	METAL CHIP	0	5%	1/16W
R940	1-216-864-11	METAL CHIP	0	5%	1/16W
R941	1-216-845-11	METAL CHIP	100K	5%	1/16W
R942	1-216-839-11	METAL CHIP	33K	5%	1/16W
R943	1-216-864-11	METAL CHIP	0	5%	1/16W
R945	1-216-864-11	METAL CHIP	0	5%	1/16W
R948	1-216-864-11	METAL CHIP	0	5%	1/16W
R949	1-216-864-11	METAL CHIP	0	5%	1/16W
R950	1-216-864-11	METAL CHIP	0	5%	1/16W
R951	1-216-864-11	METAL CHIP	0	5%	1/16W
R953	1-216-864-11	METAL CHIP	0	5%	1/16W
R962	1-216-864-11	METAL CHIP	0	5%	1/16W
R963	1-216-864-11	METAL CHIP	0	5%	1/16W
R965	1-216-864-11	METAL CHIP	0	5%	1/16W
R966	1-216-836-11	METAL CHIP	18K	5%	1/16W
R967	1-216-864-11	METAL CHIP	0	5%	1/16W
R970	1-216-864-11	METAL CHIP	0	5%	1/16W
R974	1-216-805-11	METAL CHIP	47	5%	1/16W
R975	1-216-805-11	METAL CHIP	47	5%	1/16W
R976	1-216-805-11	METAL CHIP	47	5%	1/16W
		< VARIABLE RESISTOR >			
RV701	1-225-224-11	RES, VAR (ZOOM) 10K (ZOOM)			
		< SWITCH >			
S701	1-771-128-11	SWITCH, TACTILE (CONTROL)			
S702	1-572-467-21	SWITCH, PUSH (1 KEY) (POWER ON/OFF)			
S703	1-771-106-11	SWITCH, TACTILE (PICTURE EFFECT)			
S704	1-771-106-11	SWITCH, TACTILE (DISPLAY)			
S705	1-771-106-11	SWITCH, TACTILE (VOLUME +)			
S706	1-572-467-21	SWITCH, PUSH (1 KEY) (PLAY)			
S707	1-771-106-11	SWITCH, TACTILE (VOLUME -)			
S708	1-771-106-11	SWITCH, TACTILE (FLASH)			
S709	1-771-106-11	SWITCH, TACTILE (PROGRAM AE)			
S710	1-572-467-21	SWITCH, PUSH (1 KEY) (MOVIE)			
S711	1-771-106-11	SWITCH, TACTILE (BRIGHT +)			
S712	1-771-106-11	SWITCH, TACTILE (BRIGHT -)			
S713	1-762-741-11	SWITCH, SLIDE (LCD BACKLIGHT)			
		< TRANSFORMER >			
⚠T851	1-431-861-21	TRANSFORMER, INVERTER			
		< VIBRATOR >			
X601	1-760-496-21	VIBRATOR, LITHIUM NIOBATE (4MHz)			
	A-7074-010-A	PK-48 BOARD, COMPLETE (SHARP) (FD88)			
		**********			
		(Ref.No.: 2,000 Series)			
		< CAPACITOR >			
C601	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C603	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C604	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C605	1-113-642-11	TANTAL. CHIP	47uF	20%	10V
C608	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remark
C609	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C611	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C801	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C802	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C803	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C806	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C807	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C808	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C809	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C810	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C811	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C812	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C813	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C814	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C815	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C816	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C851	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C852	1-113-981-11	TANTAL. CHIP	22uF	20%	20V
C853	1-163-081-00	CERAMIC CHIP	0.22uF		25V
C854	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C855	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C856	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C857	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C858	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C859	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C861	1-104-911-11	TANTAL. CHIP	33uF	20%	10V
C862	1-164-346-11	CERAMIC CHIP	1uF		16V
C863	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C864	1-164-661-11	CERAMIC CHIP	0.018uF	10%	50V
C865	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
⚠C866	1-113-521-11	CERAMIC CHIP	12PF	10%	3KV
C902	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C903	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C904	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C905	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C906	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C907	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C909	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C910	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C911	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C912	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C913	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C914	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C915	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C916	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C917	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C918	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
		< CONNECTOR >			
CN601	1-764-526-11	CONNECTOR, FFC/FPC 18P			
* CN602	1-750-075-11	CONNECTOR, FFC/FPC 10P			
CN603	1-785-482-41	CONNECTOR, BOARD TO BOARD 70P			
CN701	1-778-506-21	PIN, CONNECTOR (PC BOARD) 2P			
CN801	1-766-348-21	CONNECTOR, FFC/FPC 18P			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
CN851	1-691-384-11	CONNECTOR, FFC/FPC 20P	
CN901	1-691-388-11	CONNECTOR, FFC/FPC 24P	
		< DIODE >	
D601	8-719-049-09	DIODE 1SS367-T3SONY	
D705	8-719-061-82	DIODE TLSU1002 (TPX1, SONY) (ACCESS)	
D708	8-719-061-81	DIODE TLYU1002 (TPX1, SONY) (FLASH/CHARGE)	
D709	8-719-064-05	DIODE TLGU1002 (TPX1, SONY) (POWER)	
D801	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D802	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D852	8-719-073-01	DIODE MA111-(K8).S0	
D853	8-719-073-01	DIODE MA111-(K8).S0	
D901	8-719-073-01	DIODE MA111-(K8).S0	
D902	8-713-102-80	DIODE 1T369-01-T8A	
D903	8-719-976-96	DIODE MA8047-H-TX	
		< FERRITE BEAD >	
FB601	1-414-226-21	INDUCTOR CHIP 0uH	
		< IC >	
IC601	8-759-591-15	IC TB6055F (EL)	
IC801	8-759-530-19	IC MB40D001PFV-G-BND-ER	
IC802	8-759-539-27	IC IR3Y37A4	
IC803	8-759-196-97	IC TC7SH32FU-TE85R	
IC851	8-759-521-35	IC TL5001CDR	
IC852	8-759-075-70	IC TA75S393F-TE85R	
IC901	8-759-495-00	IC LZ9GH184	
IC902	8-759-327-01	IC NJM062V (TE2)	
		< COIL >	
L801	1-414-757-11	INDUCTOR 100uH	
L802	1-414-078-11	INDUCTOR 10uH	
L851	1-414-396-21	INDUCTOR 4.7uH	
L852	1-424-674-11	INDUCTOR 22uH	
L853	1-409-536-41	INDUCTOR 150uH	
L901	1-414-754-11	INDUCTOR 10uH	
L902	1-414-754-11	INDUCTOR 10uH	
L903	1-412-951-11	INDUCTOR 10uH	
L905	1-412-953-11	INDUCTOR 15uH	
		< TRANSISTOR >	
Q601	8-729-017-61	TRANSISTOR 2SB1581-T1	
Q602	8-729-037-53	TRANSISTOR 2SB1462J-QR (K8).SO	
Q603	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO	
Q604	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO	
Q851	8-729-042-72	TRANSISTOR UN9214J-(K8).SO	
Q852	8-729-042-59	TRANSISTOR UN9112J-(K8).SO	
Q853	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q854	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO	
Q855	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q856	8-729-823-84	TRANSISTOR FP102-TL	
Q857	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO	
Q858	8-729-037-52	TRANSISTOR 2SD2216J-QR (K8).SO	
Q859	8-729-037-74	TRANSISTOR UN9213J-(K8).SO	
Q860	8-729-039-43	TRANSISTOR FP216-TL	
Q861	8-729-042-59	TRANSISTOR UN9112J-(K8).SO	
Q901	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	
Q902	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	
Q903	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	

Ref. No.	Part No.	Description			Remark
Q904	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX			
		< RESISTOR >			
R601	1-218-865-11	RES, CHIP	5.6K	0.50%	1/16W
R602	1-218-865-11	RES, CHIP	5.6K	0.50%	1/16W
R603	1-216-033-00	METAL CHIP	220	5%	1/10W
R604	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R605	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R608	1-216-845-11	METAL CHIP	100K	5%	1/16W
R609	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R610	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R611	1-216-864-11	METAL CHIP	0	5%	1/16W
R613	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R614	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R616	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R619	1-216-864-11	METAL CHIP	0	5%	1/16W
R623	1-216-839-11	METAL CHIP	33K	5%	1/16W
R624	1-216-845-11	METAL CHIP	100K	5%	1/16W
R625	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R626	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R627	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R628	1-216-817-11	METAL CHIP	470	5%	1/16W
R629	1-216-864-11	METAL CHIP	0	5%	1/16W
R630	1-216-841-11	METAL CHIP	47K	5%	1/16W
R631	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R632	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R633	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R634	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R635	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R637	1-216-821-11	METAL CHIP	1K	5%	1/16W
R638	1-216-821-11	METAL CHIP	1K	5%	1/16W
R701	1-216-819-11	METAL CHIP	680	5%	1/16W
R702	1-216-819-11	METAL CHIP	680	5%	1/16W
R703	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R704	1-216-819-11	METAL CHIP	680	5%	1/16W
R705	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R706	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R707	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R708	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R709	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R710	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R711	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R712	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R713	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R715	1-216-833-91	RES, CHIP	10K	5%	1/16W
R716	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R717	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R718	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R723	1-216-839-11	METAL CHIP	33K	5%	1/16W
R803	1-216-864-11	METAL CHIP	0	5%	1/16W
R808	1-216-837-11	METAL CHIP	22K	5%	1/16W
R809	1-216-834-11	METAL CHIP	12K	5%	1/16W
R810	1-216-864-11	METAL CHIP	0	5%	1/16W
R812	1-216-841-11	METAL CHIP	47K	5%	1/16W
R813	1-216-835-11	METAL CHIP	15K	5%	1/16W
R814	1-216-839-11	METAL CHIP	33K	5%	1/16W
R816	1-216-864-11	METAL CHIP	0	5%	1/16W
R817	1-216-834-11	METAL CHIP	12K	5%	1/16W
R818	1-216-840-11	METAL CHIP	39K	5%	1/16W
R819	1-216-848-11	METAL CHIP	180K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R820	1-216-845-11	METAL CHIP	100K	5%	1/16W
R821	1-216-833-91	RES, CHIP	10K	5%	1/16W
R825	1-216-864-11	METAL CHIP	0	5%	1/16W
R826	1-414-234-11	INDUCTOR	CHIP	0uH	
R827	1-414-234-11	INDUCTOR	CHIP	0uH	
R828	1-414-234-11	INDUCTOR	CHIP	0uH	
R829	1-216-821-11	METAL CHIP	1K	5%	1/16W
R830	1-216-821-11	METAL CHIP	1K	5%	1/16W
R853	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R854	1-218-881-11	RES, CHIP	27K	0.50%	1/16W
R855	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R856	1-216-818-11	METAL CHIP	560	5%	1/16W
R857	1-216-837-11	METAL CHIP	22K	5%	1/16W
R858	1-216-818-11	METAL CHIP	560	5%	1/16W
R859	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R860	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R861	1-218-853-11	RES, CHIP	1.8K	0.50%	1/16W
R862	1-218-859-11	RES, CHIP	3.3K	0.50%	1/16W
R863	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R864	1-216-841-11	METAL CHIP	47K	5%	1/16W
R865	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R866	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R867	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R868	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R869	1-216-845-11	METAL CHIP	100K	5%	1/16W
R870	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R871	1-216-837-11	METAL CHIP	22K	5%	1/16W
R872	1-216-817-11	METAL CHIP	470	5%	1/16W
R873	1-216-810-11	METAL CHIP	120	5%	1/16W
R903	1-216-864-11	METAL CHIP	0	5%	1/16W
R904	1-216-841-11	METAL CHIP	47K	5%	1/16W
R905	1-216-841-11	METAL CHIP	47K	5%	1/16W
R907	1-216-864-11	METAL CHIP	0	5%	1/16W
R910	1-216-864-11	METAL CHIP	0	5%	1/16W
R911	1-216-846-11	METAL CHIP	120K	5%	1/16W
R912	1-216-855-11	METAL CHIP	680K	5%	1/16W
R913	1-216-845-11	METAL CHIP	100K	5%	1/16W
R916	1-216-833-91	RES, CHIP	10K	5%	1/16W
R917	1-216-857-11	METAL CHIP	1M	5%	1/16W
R918	1-218-893-11	RES, CHIP	82K	0.50%	1/16W
R919	1-216-857-11	METAL CHIP	1M	5%	1/16W
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W
R921	1-216-843-11	METAL CHIP	68K	5%	1/16W
R922	1-216-843-11	METAL CHIP	68K	5%	1/16W
R923	1-216-841-11	METAL CHIP	47K	5%	1/16W
R924	1-216-864-11	METAL CHIP	0	5%	1/16W
R925	1-218-889-11	RES, CHIP	56K	0.50%	1/16W
R926	1-216-864-11	METAL CHIP	0	5%	1/16W
R927	1-218-897-11	RES, CHIP	120K	0.50%	1/16W
R928	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R929	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R930	1-216-864-11	METAL CHIP	0	5%	1/16W
R932	1-216-845-11	METAL CHIP	100K	5%	1/16W
R933	1-216-839-11	METAL CHIP	33K	5%	1/16W
R934	1-216-864-11	METAL CHIP	0	5%	1/16W
R935	1-216-845-11	METAL CHIP	100K	5%	1/16W
R936	1-216-845-11	METAL CHIP	100K	5%	1/16W
R937	1-216-864-11	METAL CHIP	0	5%	1/16W
R938	1-216-864-11	METAL CHIP	0	5%	1/16W
R941	1-216-845-11	METAL CHIP	100K	5%	1/16W
R942	1-216-839-11	METAL CHIP	33K	5%	1/16W
R943	1-216-864-11	METAL CHIP	0	5%	1/16W
R944	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R945	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R946	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R947	1-218-879-11	RES, CHIP	22K	0.50%	1/16W
R952	1-216-864-11	METAL CHIP	0	5%	1/16W
R954	1-216-864-11	METAL CHIP	0	5%	1/16W
R956	1-216-864-11	METAL CHIP	0	5%	1/16W
R957	1-216-864-11	METAL CHIP	0	5%	1/16W
R958	1-216-864-11	METAL CHIP	0	5%	1/16W
R959	1-216-864-11	METAL CHIP	0	5%	1/16W
R960	1-216-864-11	METAL CHIP	0	5%	1/16W
R961	1-216-864-11	METAL CHIP	0	5%	1/16W
R964	1-216-864-11	METAL CHIP	0	5%	1/16W
R968	1-216-864-11	METAL CHIP	0	5%	1/16W
R969	1-216-864-11	METAL CHIP	0	5%	1/16W
R971	1-216-805-11	METAL CHIP	47	5%	1/16W
R972	1-216-805-11	METAL CHIP	47	5%	1/16W
R973	1-216-805-11	METAL CHIP	47	5%	1/16W
		< VARIABLE RESISTOR >			
RV701	1-225-224-11	RES, VAR (ZOOM) 10K (ZOOM)			
		< SWITCH >			
S701	1-771-128-11	SWITCH, TACTILE (CONTROL)			
S702	1-572-467-21	SWITCH, PUSH (1 KEY) (POWER ON/OFF)			
S703	1-771-106-11	SWITCH, TACTILE (PICTURE EFFECT)			
S704	1-771-106-11	SWITCH, TACTILE (DISPLAY)			
S705	1-771-106-11	SWITCH, TACTILE (VOLUME +)			
S706	1-572-467-21	SWITCH, PUSH (1 KEY) (PLAY)			
S707	1-771-106-11	SWITCH, TACTILE (VOLUME -)			
S708	1-771-106-11	SWITCH, TACTILE (FLASH)			
S709	1-771-106-11	SWITCH, TACTILE (PROGRAM AE)			
S710	1-572-467-21	SWITCH, PUSH (1 KEY) (MOVIE)			
S711	1-771-106-11	SWITCH, TACTILE (BRIGHT +)			
S712	1-771-106-11	SWITCH, TACTILE (BRIGHT -)			
S713	1-762-741-11	SWITCH, SLIDE (LCD BACKLIGHT)			
		< TRANSFORMER >			
⚠T851	1-431-861-21	TRANSFORMER, INVERTER			
		< VIBRATOR >			
X601	1-760-496-21	VIBRATOR, LITHIUM NIOBATE (4MHz)			
	A-7074-014-A	RL-54 BOARD, COMPLETE (FD83)			
	A-7074-008-A	RL-56 BOARD, COMPLETE (FD88)			
		**********			
		(Ref.No.: 2,000 Series)			
		< CONNECTOR >			
CN001	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S001	1-692-247-11	SWITCH, TACTIL (2 CLICK) (SHUTTER)	
		MISCELLANEOUS	
		**********	
⚠15	1-517-893-11	FLASH UNIT	
19	1-790-874-11	CABLE, FLEXIBLE FLAT (FFC-281)	
21	1-694-554-11	TERMINAL BOARD, BATTERY	
22	1-959-764-21	HARNESS (FF-199)	
26	1-418-425-11	MF BLOCK	
51	1-674-162-21	FP-116 (PK-FC) FLEXIBLE BOARD	
60	1-772-046-11	DRIVE, FLOPPY DISK (3.5inch)	
76	1-959-765-11	HARNESS (SP-161)	
101	8-848-735-01	DEVICE, LENS LSV-550C (FD83)	
105	1-758-217-11	FILTER BLOCK, OPTICAL (FD83)	
109	1-674-161-11	FP-115 (CD-FC) FLEXIBLE BOARD	
151	1-758-323-11	LENS, VIDEO (VCL-4708VA) (FD88)	
155	1-758-322-21	FILTER BLOCK, OPTICAL (FD88)	
159	1-674-161-11	FP-115 (CD-FC) FLEXIBLE BOARD	
IC101	A-7031-017-A	CCD BLOCK ASSY (CCD IMAGER) (FD83)	(Note 1)
IC201	A-7030-999-A	CCD BLOCK ASSY (CCD IMAGER) (FD88)	(Note 1)
LCD901	1-803-357-21	MODULE, CRYSTAL INDICATION (SHARP)	(FD88)
LCD901	1-803-358-21	MODULE, CRYSTAL INDICATION (CASIO)	(FD83)
M901	3-709-497-01	MOTOR, FOCUS STEPPING (FD88) (Note 2)	
M902	3-709-498-01	MOTOR, ZOOM STEPPING (FD88) (Note 2)	
M903	3-709-499-01	METER, ND (FD88) (Note 2)	
MIC901	1-542-312-11	MICROPHONE	
⚠ND801	1-517-787-11	TUBE, FLUORESCENT, COLD CATHODE	
SP901	1-529-174-11	SPEAKER (2.0cm)	
		ACCESSORIES	
		**********	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (E)	
⚠	1-696-819-11	CORD, POWER (AUS)	
⚠	1-769-608-11	CORD, POWER (AEP, UK, E, HK)	
⚠	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK, HK)	
⚠	1-782-476-11	CORD, POWER (CH)	
	1-783-738-31	CORD, CONNECTION	
⚠	1-790-073-11	CORD, POWER 2P (JE, J)	
⚠	1-790-107-22	CORD, POWER (US, CND)	
	3-055-746-01	SOFT (CS), BUNDLE (US)	
	3-055-748-01	SOFT (PS), BUNDLE (EXCEPT US, CH, J)	
	3-056-925-01	SOFT (CN), BUNDLE (CH)	
	3-724-594-01	STRING, CAP	
	3-864-060-11	MANUAL, INSTRUCTION (for BC-V615) (ENGLISH, FRENCH, GERMAN, SPANISH)	(EXCEPT J)
	3-864-060-21	MANUAL, INSTRUCTION (for BC-V615) (ITALIAN, DUTCH, PORTUGUESE, RUSSIAN)	(AEP, E, HK, CH)
	3-864-060-31	MANUAL, INSTRUCTION (for BC-V615) (CHINESE, KOREAN, ARABIC) (E, HK, CH, KR)	
	3-866-482-01	MANUAL, INSTRUCTION (for BC-V615)	(JAPANESE) (J)
	3-866-779-01	MANUAL, INSTRUCTION (JAPANESE) (J)	
	3-866-779-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH)	(EXCEPT J)
	3-866-779-21	MANUAL, INSTRUCTION (GERMAN, FRENCH)	(CND, AEP, JE)
	3-866-779-31	MANUAL, INSTRUCTION (ITALIAN, DUTCH)	(AEP)
	3-866-779-41	MANUAL, INSTRUCTION (PORTUGUESE, RUSSIAN)	(AEP, E, HK, CH, JE)
	3-866-779-51	MANUAL, INSTRUCTION (CHINESE)	(E, HK, CH, JE)
	3-866-779-61	MANUAL, INSTRUCTION (ARRABIC, KOREAN)	(E, HK, CH, KR, JE)
	3-866-779-71	MANUAL, INSTRUCTION (SWEDISH)	(AEP)
	3-987-015-01	BELT (S), SHOULDER	
⚠	A-7029-111-A	BC-V615 AC POWER ADAPTOR	
	A-7094-140-A	NP-F330 BATTERY PACK (US, CND)	
	A-7094-141-A	NP-F330 BATTERY PACK (EXCEPT US, CND, J)	
	A-7094-142-A	NP-F330 BATTERY PACK (J)	
	X-3949-054-2	CAP ASSY, LENS	

(Note 1) Be sure to read “Precautions for Replacement of CCD Imager” on page 4-6, 4-8 when changing the CCD imager.

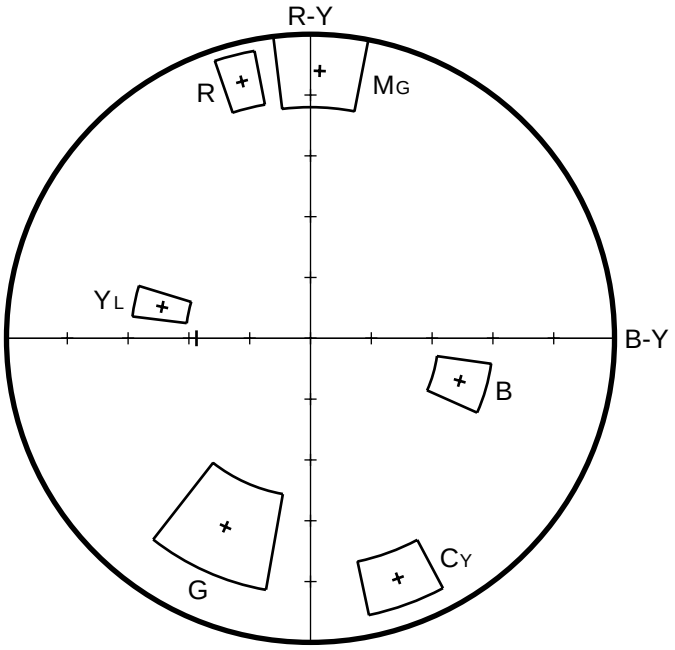
(Note 2) Flexible board of video lens is not supplied. Please be careful not to break the flexible board when you change the motor unit.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

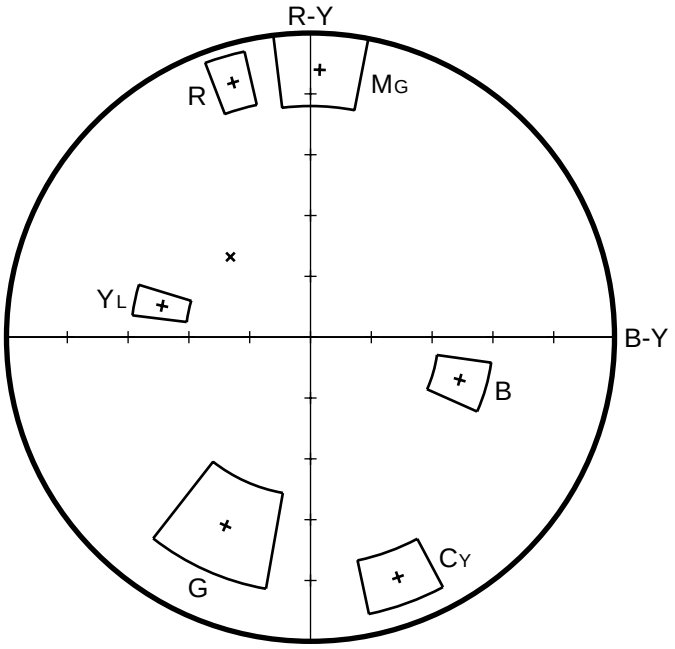
Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

For NTSC



MVC-FD83

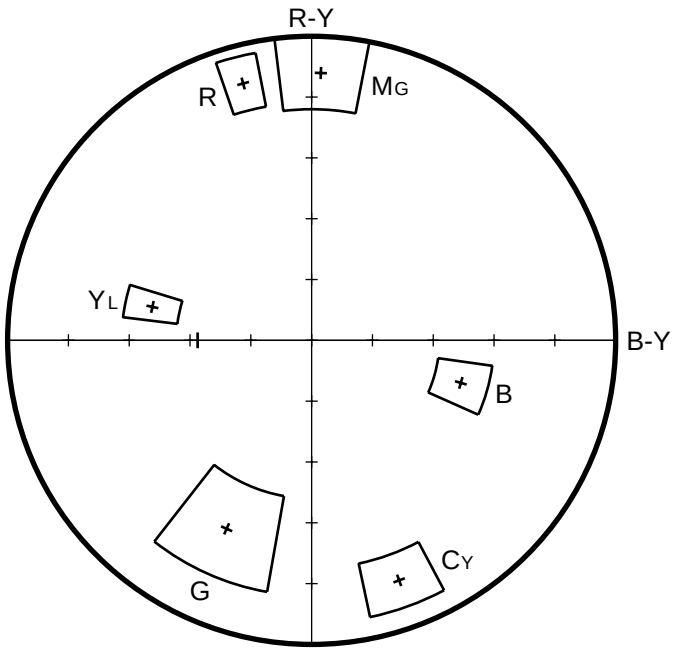
For PAL



MVC-FD83

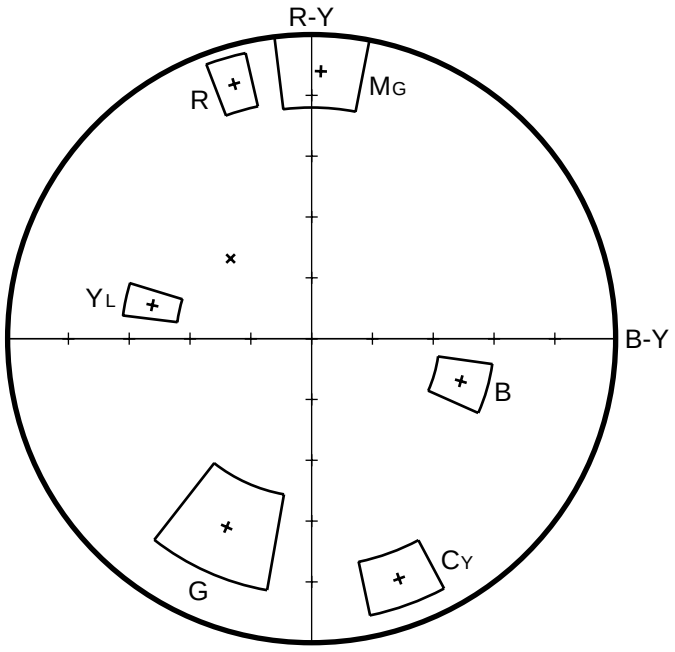
FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

For NTSC



MVC-FD88

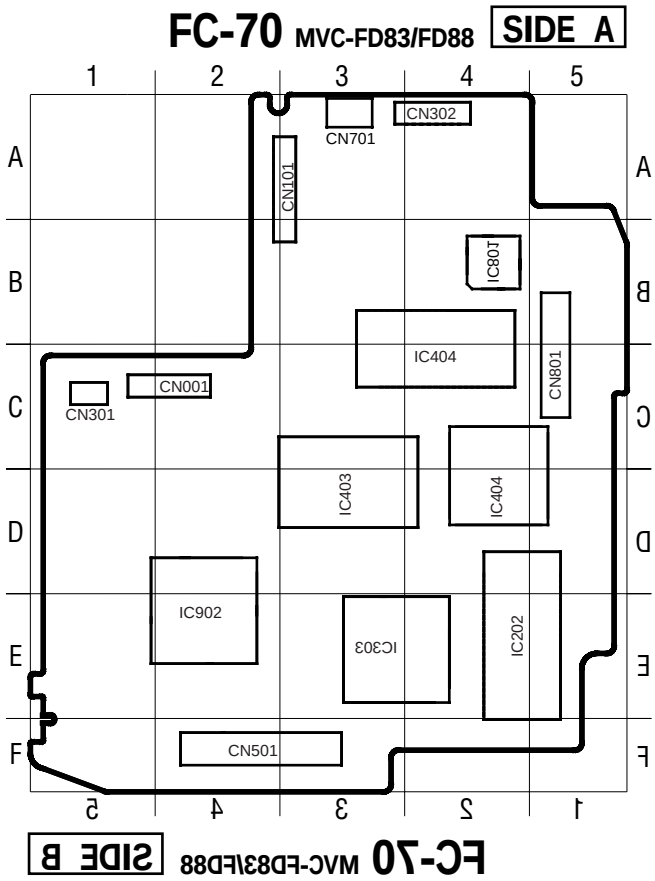
For PAL



MVC-FD88

< PARTS REFERENCE SHEET >

You can find the parts position of mount locations applying to FC-70 board of a set.



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